

Appendix U

Responses to Comments

Part II

For Bacteria TMDLs Project I
Adopted by the San Diego Water Board on
December 12, 2007

This page intentionally left blank

Table of Contents

1	List of Persons Submitting Comments	1
2	Comment Numbers and Categories	2
3	Introduction.....	5
4	Comments and Responses.....	6
4.1	Reference System Approach Basin Plan Amendment.....	6
4.2	Technical Analysis.....	12
4.3	Water Quality Objectives/Indicator Bacteria.....	30
4.4	Beneficial Uses	36
4.5	Implementation Plan/Compliance Assessment.....	40
4.6	Compliance Schedule.....	52
4.7	Environmental Analysis.....	56
4.8	Economics.....	58
4.9	Comprehensive Load Reduction Plans	61
4.10	Independent Advisory Panel	66
4.11	Miscellaneous	69
5	References Cited	76

This page intentionally left blank

1 List of Persons Submitting Comments

The following persons submitted comments on the June 25, 2007 version of the Technical Report for the Total Maximum Daily Loads (TMDLs) for Indicator Bacteria Project I—Beaches and Creeks in the San Diego Region. The table in section 2, below, links the commenter with the comment number, and version of the TMDL documents on which the comment was made.

- City of Dana Point
- City of Del Mar
- City of Laguna Beach
- City of Laguna Niguel
- City of Poway
- City of San Juan Capistrano
- County of Orange
- County of San Diego
- Heal The Bay
- San Diego Coastkeeper
- Sierra Club
- U.S. Environmental Protection Agency

2 Comment Numbers and Categories

Section	Comment Number	Commenter	Version of Technical Report	Page Number
4.1 Reference System Approach Basin Plan Amendment				
4.1	284	Sierra Club	June 25, 2007	6
4.1	285	City of Dana Point	June 25, 2007	6
4.1	286	City of Dana Point	June 25, 2007	6
4.1	287	City of Dana Point	June 25, 2007	7
4.1	288	County of Orange	June 25, 2007	8
4.1	289	County of Orange	June 25, 2007	9
4.1	290	County of Orange	June 25, 2007	9
4.2 Technical Analysis				
4.2	291	City of Dana Point	June 25, 2007	12
4.2	292	City of Dana Point	June 25, 2007	13
4.2	293	City of Dana Point	June 25, 2007	13
4.2	294	City of Dana Point	June 25, 2007	14
4.2	295	City of Dana Point	June 25, 2007	14
4.2	296	County of Orange	June 25, 2007	15
4.2	297	County of Orange	June 25, 2007	16
4.2	298	County of Orange	June 25, 2007	19
4.2	299	County of Orange	June 25, 2007	20
4.2	300	County of Orange	June 25, 2007	20
4.2	301	County of Orange	June 25, 2007	21
4.2	302	County of Orange	June 25, 2007	22
4.2	303	County of Orange	June 25, 2007	23
4.2	304	County of Orange	June 25, 2007	23
4.2	305	County of Orange	June 25, 2007	23
4.2	306	County of Orange	June 25, 2007	24
4.2	307	County of Orange	June 25, 2007	24
4.2	308	County of Orange	June 25, 2007	25
4.2	309	County of Orange	June 25, 2007	26
4.2	310	County of Orange	June 25, 2007	26
4.2	311	County of Orange	June 25, 2007	27
4.2	312	County of Orange	June 25, 2007	27
4.2	313	County of Orange	June 25, 2007	28
4.2	314	City of San Diego	June 25, 2007	29
4.2	315	City of San Diego	June 25, 2007	29
4.2	316	City of San Diego	June 25, 2007	29

Section	Comment Number	Commenter	Version of Technical Report	Page Number
4.3 Water Quality Objectives / Indicator Bacteria				
4.3	317	County of Orange	June 25, 2007	30
4.3	318	County of Orange	June 25, 2007	32
4.3	319	County of Orange	June 25, 2007	33
4.3	320	County of Orange	June 25, 2007	33
4.3	321	City of San Diego	June 25, 2007	34
4.3	322	U.S. Environmental Protection Agency	June 25, 2007	35
4.4 Beneficial Uses				
4.4	323	City of Dana Point	June 25, 2007	36
4.4	324	County of Orange	June 25, 2007	36
4.4	325	County of Orange	June 25, 2007	37
4.4	326	County of Orange	June 25, 2007	37
4.4	327	County of Orange	June 25, 2007	38
4.4	328	County of Orange	June 25, 2007	39
4.4	329	City of San Diego	June 25, 2007	39
4.5 Implementation Plan / Compliance Assessment				
4.5	330	City of Dana Point	June 25, 2007	40
4.5	331	City of Dana Point	June 25, 2007	40
4.5	332	City of Dana Point	June 25, 2007	41
4.5	333	City of Del Mar	June 25, 2007	41
4.5	334	City of Del Mar	June 25, 2007	44
4.5	335	City of Del Mar	June 25, 2007	44
4.5	336	City of Del Mar	June 25, 2007	45
4.5	337	City of Del Mar	June 25, 2007	45
4.5	338	City of Del Mar	June 25, 2007	46
4.5	339	City of Del Mar	June 25, 2007	47
4.5	340	City of Del Mar	June 25, 2007	47
4.5	341	City of Del Mar	June 25, 2007	48
4.5	342	County of Orange	June 25, 2007	48
4.5	343	County of Orange	June 25, 2007	49
4.5	344	City of San Diego	June 25, 2007	50
4.5	345	City of San Diego	June 25, 2007	50
4.5	346	City of San Diego	June 25, 2007	51
4.6 Compliance Schedule				
4.6	347	San Diego Coastkeeper	June 25, 2007	52
4.6	348	County of San Diego	June 25, 2007	52
4.6	349	County of Orange	June 25, 2007	53
4.6	350	City of San Diego	June 25, 2007	53
4.6	351	Heal the Bay	June 25, 2007	54
4.6	352	Heal the Bay	June 25, 2007	54

Section	Comment Number	Commenter	Version of Technical Report	Page Number
4.7 Environmental Analysis				
4.7	353	City of San Diego	June 25, 2007	56
4.7	354	City of San Diego	June 25, 2007	56
4.7	355	City of San Diego	June 25, 2007	57
4.8 Economics				
4.8	356	City of Dana Point	June 25, 2007	58
4.8	357	County of Orange	June 25, 2007	58
4.8	358	City of San Diego	June 25, 2007	59
4.9 Comprehensive Load Reduction Plans				
4.9	359	City of Laguna Niguel	June 25, 2007	61
4.9	360	City of Dana Point	June 25, 2007	62
4.9	361	City of Laguna Beach	June 25, 2007	62
4.9	362	San Diego Coastkeeper	June 25, 2007	63
4.9	363	San Diego Coastkeeper	June 25, 2007	64
4.9	364	San Diego Coastkeeper	June 25, 2007	65
4.10 Independent Advisory Panel				
4.10	365	County of Orange	June 25, 2007	66
4.10	366	County of San Diego	June 25, 2007	67
4.10	367	City of Laguna Niguel	June 25, 2007	67
4.11 Miscellaneous				
4.11	368	City of Dana Point	June 25, 2007	69
4.11	369	City of Dana Point	June 25, 2007	69
4.11	370	City of Dana Point	June 25, 2007	70
4.11	371	City of San Diego	June 25, 2007	71
4.11	372	City of San Diego	June 25, 2007	72
4.11	373	City of San Diego	June 25, 2007	72
4.11	374	City of San Diego	June 25, 2007	73
4.11	375	Heal the Bay	June 25, 2007	73
4.11	376	Heal the Bay	June 25, 2007	74
4.11	377	City of Laguna Niguel	June 25, 2007	75
4.11	378	City of Laguna Niguel	June 25, 2007	75
4.11	379	City of Poway	June 25, 2007	75

3 Introduction

This report provides responses to public comments received on the June 25, 2007 version of the Technical Report for the Total Maximum Daily Loads for Indicator Bacteria Project I - Beaches and Creeks in the San Diego Region. The TMDL documents were made available to the public for formal review and comment beginning June 25, 2007.

The San Diego Water Board received comments in letters and emails from interested persons on the June 25, 2007 version of the TMDL documents. The letters were not reproduced in this document. Individual comments were excerpted from the letters and email, and organized by subject. The comments were numbered sequentially in this report and the comment numbers were continued from Appendix S, *Response to Comments*, dated June 25, 2007. Individual commenters are identified in the “List of Persons Submitting Comments” on page U-1 of this appendix.

4 Comments and Responses

Comments and responses are grouped according to subject matter in the following subsections.

4.1 *Reference System Approach Basin Plan Amendment*

Comment 284

We support the interim TMDLs which account for natural sources of indicator bacteria during wet weather. We recommend that steps be taken to amend the Basin Plan to incorporate the reference system approach. There is a sense of urgency to move forward with this amendment as the final TMDLs are significantly higher and therefore, more costly to attain absent the allowance for natural bacteria sources.

Response: The San Diego Water Board is currently working on an amendment to the Basin Plan authorizing the use of a reference system and antidegradation approach or natural sources exclusion approach during implementation of indicator bacteria water quality objectives within the context of a TMDL. Drafts of the technical report and amendment language have been reviewed by the Reference System Stakeholder Advisory Group. The drafts are currently undergoing external scientific peer review. Once the peer review process is completed, the drafts will be released for public review. Release of the drafts for public review is expected to occur in the winter of 2007-2008.

Comment 285

The City is pleased to see that both the State Water Resources Control Board (SWRCB) and the San Diego Regional Water Quality Control Board (RWQCB) have acknowledged the need to address natural sources of pollutants. RWQCB staff has included language that is more definitive in regards to developing a reference system/natural sources exclusion approach Basin Plan amendment under a separate effort from this TMDL project, with a deadline of one-year after the effective date of the TMDL. RWQCB staff had indicated that the project is currently in process, and a Stakeholder Advisory Group (SAG) has been established to participate in this process.

The State Water Resources Control Board is proposing to amend the Ocean Plan to acknowledge non-human sources of bacteria. As we slowly, but diligently, learn more, it appears that addressing non-human sources of bacteria will be a significant piece of the puzzle in terms of planning and implementation. The City has commented appropriately on the Ocean Plan Scoping Document. The City encourages the RWQCB staff to ensure that the TMDL development coincides with the State's proposed efforts.

Response: The San Diego Water Board is an active participant in the State Water Board's public process to amend the Ocean Plan and intends to implement the TMDL consistently with the State Water Board's Ocean Plan efforts.

Comment 286

Page S-21 states that in order to use the natural sources exclusion approach, dischargers must control all anthropogenic sources of indicator bacteria, including the prevention or

infiltration from the sanitary sewer and control of sanitary sewer over flows, etc. It should be noted that the sanitary sewer is owned and operated by an independent water/sewer district in Dana Point, as well as in other cities in south Orange County, over which we have no control. We ask that this fact be acknowledged in the TMDL document.

Response: In order to address this situation, the TMDL has been modified to include as responsible dischargers wastewater agencies that control the sanitary sewer systems. As such, the wastewater agencies will be primarily responsible for sewer leaks or overflows that may enter MS4s and be discharged into receiving waters. This action does not increase the responsibilities of the wastewater agencies as they are already required to prevent discharges from the sanitary sewer to the storm sewers pursuant to their waste discharge requirements prescribed in State Water Board Order No. 2006-0003-DWQ. However, municipalities will also continue to remain secondarily responsible for sewage that is collected, transported, and discharged by their MS4s. This is consistent with the requirements of the Clean Water Act, which requires that municipalities effectively prohibit non-storm water discharges, such as sewage, into their MS4s.¹

Comment 287

Page S-20 states that the natural sources exclusion approach will essentially recognize natural exceedances of WQOs as long as all anthropogenic sources of indicator bacteria are controlled. Under the natural sources exclusion approach, after all anthropogenic sources of indicator bacteria have been controlled, a certain frequency of exceedance of the WQOs can be authorized based on applying a natural exceedance frequency to the specific water body.

The City is concerned that this document and process has not considered the detailed method of compliance. For example, the document has made reference of "anthropogenic" sources of indicator bacteria as human and domestic animal waste.

In the following hypothetical scenario, from the eyes of a regulator, do the actions below "demonstrate" that all anthropogenic bacteria are controlled?

- Sewer agency implements its Sanitary Sewer Overflow Prevention Program
- Areas of repeated homeless activity are regularly inspected and homeless are forced to move per current protocol.
- Pet owner ordinance requiring pet owners to pick up pet waste.
- City provides poop pick up bags and trash receptacle in hot spot areas.
- Ongoing education regarding impacts of pet waste to water quality is conducted.

The City feels it is crucial to think about how this TMDL document is going to be implemented in the real world as we are still in the planning/development stage. We understand that details will come later; however we ask that, at the very minimum, please conceptualize how the connection between regulatory requirements and implementation and compliance assessment will work or acknowledge that what was provided above would meet current expectations.

¹ Clean Water Act section 402(p)(B)(3)(ii).

Response: Under the natural sources exclusion approach, control of anthropogenic sources is expected to be demonstrated by using the weight of evidence gathered from several different efforts. The general framework for such an approach would include: (1) demonstration of compliance with all permit BMP requirements related to indicator bacteria sources; (2) implementation of BMPs to control indicator bacteria discharges, such as those BMPs mentioned in the comment, as well as others; (3) performance of a sanitary survey that identifies no ongoing anthropogenic sources; (4) monitoring of indicator bacteria in the target water body to show indicator bacteria levels consistent with natural sources; (5) performance of an epidemiological study demonstrating that swimmers are not subject to elevated health risks; and (6) microbial source tracking indicating that controllable anthropogenic sources are not contributing indicator bacteria to the target water body.

Comment 288

Comment 8. The response in Appendix S indicates that *“Dry weather beach data from near the outlets of San Mateo and San Onofre Creeks (relatively undeveloped watersheds) were used in this project to show that single sample maximum WQOs are rarely exceeded during dry flow conditions. In contrast, SCCWRP showed that single sample maximum WQOs are frequently exceeded at beaches near the outlets of undeveloped (reference) watersheds during wet weather, or storm flow conditions. Thus, a TMDL that allows some exceedance of single sample WQOs is appropriate for storm flow conditions, but not for dry flow conditions. In addition, a reference system approach is not applicable to dry weather TMDL calculations because numeric targets are based on the geometric mean WQOs.”*

During dry flow conditions, San Mateo and San Onofre Creeks do not discharge to the ocean. The mouths of the creeks are closed by sand berms during much of the dry season, therefore it is questionable whether this data set is appropriate for determining whether creek inputs can cause single sample maximum WQO exceedances at the beach. This response also appears in conflict with the response to Comment 9 which states *“We recognize that there is essentially no data at this point to quantify bacteria loading from a reference watershed during dry weather.”* Additionally, inspection of the dry weather monitoring during 2004-2005 (not evaluated by the Regional Board in the TMDL) within the undeveloped San Onofre Creek watershed also exhibits frequent exceedances of single sample maximum water quality objectives for indicator bacteria. Inspection of data available to the Regional Board clearly indicates that frequent exceedances were observed upstream in San Onofre Creek and the San Onofre lagoon for *E. coli* and enterococcus, while frequent exceedances at the beach were observed for total coliform. Given the undeveloped nature of this watershed, reexamination and careful consideration of the reference system approach for dry weather seems appropriate.

Response: The San Diego Water Board is currently working on an amendment to the Basin Plan that will authorize the use of a reference system and antidegradation approach or natural source exclusion approach during implementation of indicator bacteria water quality objectives within the context of TMDLs. The amendment is anticipated to authorize use of a reference system and antidegradation approach for dry weather

TMDLs. As such, there will be an opportunity to recalculate the dry weather TMDLs for inland streams using a reference system and antidegradation approach in the future once data are sufficient to use a statistical approach rather than a modeling approach for dry weather TMDL calculations.

Comment 289

Comment 9. “the data collected at the shoreline of San Onofre and San Mateo Creeks was not used to establish an acceptable exceedance frequency for dry weather. The data was used merely to demonstrate that local beach sources, such as birds, marine mammals, and re-growth in the wrack line, are not sufficient to cause exceedances of single sample maximum WQOs during dry weather conditions. We recognize that there is essentially no data at this point to quantify bacteria loading from a reference watershed during dry weather. However, a reference system approach will not be used to calculate dry weather TMDLs for the reasons described in the response to Comment 8.”

The data from 2004-2005 indicate very different results than those described in the response above. Given that there are exceedances of WQO in undeveloped watersheds during the dry season, the reexamination and careful consideration of the reference system approach for dry weather seems appropriate (as recommended above in #8).

The critical point was chosen as a conservative measure to protect the downstream beach, where the majority of REC-1 use occurs.

It is noted that the perspective of focusing on areas where the majority of the use occurs is one that we condone and encourage the Board to emphasize. In fact, not only are the locations where the majority of the use occurs important, so are the times of the year when the majority of the use occurs.

Response: The 2004-2005 dry weather data from San Onofre Beach support the San Diego Water Board’s previous response. Of twelve samples collected and tested for total coliform, E. coli, and enterococci during dry weather at San Onofre Beach, only one sample exceeded water quality objectives, and only for one parameter (enterococci). However, water quality objectives were more frequently exceeded at inland locations on San Onofre Creek during dry weather. These data indicate that a reference system and antidegradation approach may be useful for dry weather TMDLs for creeks. As such, the San Diego Water Board is developing a Basin Plan amendment that will authorize the use of a reference system and antidegradation approach during implementation of indicator bacteria water quality objectives within the context of dry weather TMDLs. Please see the response to Comment 284 above for further discussion of this amendment.

Regarding the comment of focusing where and when the majority of the use occurs, the San Diego Water Board will do so when such an approach conservatively protects beneficial uses.

Comment 290

Comment 17. In developing the reference system approach, there will be variation in exceedance frequencies from reference watershed to reference watershed. There will

also be variation in exceedance frequencies based on the method used to determine an acceptable exceedance frequency (e.g., minimum, mean, maximum).

The commenter notes that local reference stations show exceedances of up to 50 percent. However, the commenter fails to note that there are data from reference watersheds that have exceedances as low as 0 percent.

We used a conservative approach when developing the TMDLs. Until evidence is provided that demonstrates a less conservative approach is warranted, the TMDLs that are developed must be protective of the beneficial uses of the receiving waters. At this time, we determined that an allowable exceedance frequency of 22 percent, based on data from the Los Angeles Water Board to be acceptable by the San Diego Water Board for purposes of developing interim TMDLs. When the reference system/natural sources exclusion approach Basin Plan amendment is adopted, region-wide, bacteria-specific, and/or watershed-specific allowable exceedance frequencies will be developed.

The response does not address the comment that was made. The salient points, which remain unanswered are: 1) the methodology of combining the reference system approach developed by the Los Angeles Regional Board to allow a specific exceedance frequency with the wet weather loading approach to estimate required load reductions during wet weather, is without precedent or technical basis, 2) we are very concerned with the lack of sensitivity analysis associated with the current reference system approach. Local reference stations, based on limited data show exceedances of up to 50%, yet the allowable frequencies specified in the TMDL, based on data from the Los Angeles Regional Board, are 22%, 3) We believe that the potential impacts associated with characterizing the sensitivity of reference watersheds to variability justify rigorous and prioritized investigation, and 4) the reference system approach should also be applied to winter dry weather as is the case in TMDLs conducted by the Los Angeles Regional Board (and may be supported by the data discussed in #8 above)

Response: Our response is organized according to the numbered issues found in the comment:

(1) The methodology of using the reference system and antidegradation approach to calculate an allowable exceedance load using exceedance days is technically sound. The methodology has undergone external scientific peer review and has been thoroughly described in the technical report (see Appendix I).

(2 & 3) The allowable exceedance frequency of 22 percent is used for interim TMDLs. As described in our previous response, the 22 percent frequency was chosen as a conservative measure using the best available data (data from more local reference systems was not sufficient for TMDL calculation). However, as new data from better matched reference systems becomes available, the final wet weather TMDLs will be recalculated. Likewise, continuing to characterize and understand variability among different reference systems is important. New information from these efforts can also be used to better quantify exceedance frequencies and recalculate the final TMDLs. The San Diego Water Board will continue to support the ongoing research being conducted on this issue by SCCWRP.

(4) The San Diego Water Board is currently working on an amendment to the Basin Plan that will authorize the use of a reference system and antidegradation approach during implementation of indicator bacteria water quality objectives within the context of TMDLs. The amendment is anticipated to authorize use of a reference system and antidegradation approach for dry weather TMDLs.

4.2 Technical Analysis

Comment 291

We must take exception to the Existing Beneficial Uses statement on page S-44, last paragraph regarding SHELL beneficial use. "Collection of shellfish for consumption along California's coasts and bays is well documented for both commercial and sport purposes," The "well documented" appears unsubstantiated, specifically for the south Orange County area in the northern portion of the San Diego RWQCB region. The City requests a copy of any documentation substantiating this statement for the coast in southern Orange County. RWQCB staff has provided, to date, only an internal memo (attached), dated November 3, 2006 from Christina Arias to Julie Chan regarding a meeting with Department of Fish & Game (DFG) which indicates that DFG wardens have observed shellfishing and/or habitat in San Diego County, and Huntington Beach. From the information provided in the memo, it appears that there are data gaps in south Orange County (areas north of Oceanside in the San Diego Region). Absent any additional "well documented" evidence of shellfishing and/or habitat along the south Orange County coastline, acknowledgement that no documentation exists for south Orange County is requested, please.

Further, the blanket approval for all beaches to meet a higher standard than for human recreation is simply unattainable within the TMDL time frame required and it is also potentially financially infeasible. We would submit that sections of beaches adjacent to major creeks and outfalls from an urban environment, with large bird populations, will seldom meet bacteria total coliform numbers of 70/100ml and should be excluded from shellfish harvesting. Let's be smart about this! Since there appears to be no evidence or proof of collection and consumption of shellfish along south Orange County beaches, let's carefully choose certain sections of beaches where shellfishing can be reinstated and have a reasonable chance of regularly meeting this difficult to obtain standard. The RWQCB has repeatedly indicated that this TMDL is not the appropriate venue to address the beneficial uses, as identified in the Basin/Ocean Plan; however wouldn't it make sense to revisit this issue as part of the TMDL implementation plan before dischargers are forced to spend millions and potentially billions of dollars trying to restore a beneficial use that may not be appropriate for all beaches?

Response: All the coastal waters in the San Diego Region are designated as having existing SHELL beneficial use. If a water body is designated with a beneficial use in the Basin Plan, this means that the beneficial use must be supported and the mission of the San Diego Water Board is to ensure that the water quality supports the beneficial use to be in compliance with the Basin Plan. The TMDL is developed to restore and protect water quality to support the beneficial uses in the Basin Plan. The TMDL may identify beneficial uses that are difficult to support, but a TMDL does not determine whether a beneficial use is appropriate or not.

We consulted the DFG to evaluate the possibility that the SHELL beneficial use does not exist anywhere along the coastal waters of the San Diego Region. However, after consulting with the DFG, we concluded that the habitat along the coast, especially the

beaches in this TMDL, is suitable for several harvestable types of shellfish. If the City believes that the SHELL beneficial use does not exist along any coastal segments in Orange County, sufficient evidence must be provided to support the removal of the beneficial use from the Basin Plan. Until then, the all coastal waters will remain designated with the SHELL beneficial use.

The natural sources exclusion approach presented a method for calculating SHELL TMDLs that would not result in meeting WQOs at all times. However, consultation with the USEPA led us to discover that the National Shellfish Sanitation Program Model Ordinance, on which our WQOs for SHELL are based, does not allow consideration of non-anthropogenic sources in its implementation. Because the data from reference beaches show that non-anthropogenic bacteria sources frequently cause exceedances of SHELL WQOs, we decided to remove the SHELL TMDLs from this project.

SHELL will be addressed in a separate SHELL TMDL and/or standards action pending the outcome of the work of the statewide task force involving the Ocean Planning Unit of the State Water Board, the California Department of Public Health, the USEPA, and the coastal Regional Water Boards.

Comment 292

The response to Comment 38 indicates numerous times that "Dischargers are not required to reduce loads caused by background sources, even though these loads are eventually transmitted to receiving waters via MS4s". The City has concern as to how this is going to be quantified and implemented. It also does not account for regrowth/proliferation of background bacteria. For example, even if we could quantify an amount of background bacteria that enters an MS4, that "background" bacteria could multiply in the MS4 and the amount of background bacteria exiting the MS4 could be more than what entered. These issues will need to be taken into account when determining how the natural background exclusion, implementation and assessment methods are developed. Please discuss.

Response: For a TMDL developed using the reference system approach, the load from background sources for an urban watershed is estimated based on the loading in a reference watershed. The "allowable exceedance load" is ascribed to the natural sources and the dischargers do not need to quantify natural loads in the urban watershed. For a TMDL developed using the natural sources exclusion approach, a suggested methodology for estimating non-anthropogenic loads is outlined in the response to Comment 287. How to account for bacteria re-growth in storm drains is an issue that needs further study. Although pathogenic viruses cannot reproduce outside of a host, pathogenic bacteria might be capable of reproducing in the biofilms that line storm drains. The risk posed to human health by "re-growth" bacteria is not well understood at this time.

Comment 293

The response to Comment 41 acknowledges that there was "limited" validation of the modeling assumptions specific to land use, which is the basis for the entire TMDL. We have many concerns about pursuing an intense regulatory document that will require

extremely large amounts of public funds to implement on a program based on a model that may not be appropriately or carefully validated. The stated lack of time and resources of the RWQCB would seem to be the same difficulty with which dischargers are struggling with.

Response: As stated in the response to Comment 41, validation of modeling assumptions specific to land uses was limited by the lack of land-use-specific water quality data collected in the San Diego Region. Land-use-specific water quality data collected by SCCWRP in the Los Angeles Region were used to determine ranges of bacteria build up rates on specific land uses.

We used bacteria build up rates on different land uses based on the water quality data collected in the Los Angeles Region because there are no land-use-specific water quality data for the San Diego Region. During the calibration of the LSPC model the bacteria build up rates were selected from the bacteria build up rate ranges determined by SCCWRP for the Los Angeles Region. The bacteria build up rates that were selected were then validated to San Diego Region water quality data. Please see Appendix J, section J.2.5 for a more detailed discussion.

The commenter may be concerned that the build up rates selected are not based on San Diego Region water quality data. However, the alternative is to make assumptions that are not based on any water quality data, but based on literature or other sources that would likewise not be based on data specific to the San Diego Region. We believe that the bacteria build up rates selected are appropriate based on the results of the model validation using the model calibrated with the bacteria build up rates selected.

However, a special study could be performed as part of the TMDL implementation to obtain bacteria build up rates for different land uses specific to the San Diego Region. The model can be re-calibrated and re-validated with the new bacteria build up rates based on the San Diego Region land-use-specific water quality data.

Comment 294

Per Comment 59, the City requests that the concurrence that MPN is an equivalent metric to CFU be written into the TMDL document.

Response: We concur that MPN is an equivalent metric to CFU. However, we have not revised the TMDL documents. The units that will be used to measure bacteria densities in the water samples collected should be discussed during the stakeholder process prior to submission of the Pollutant Load Reduction Plans.

Comment 295

The response to Comment 82, "Whether or nor the use of infiltration is feasible in terms of complying with TMDL requirements is the responsibility of the dischargers to investigate. We cannot speculate on the manner of compliance with the TMDLs."

One has to question how realistic the financial analysis is, in terms of Implementation, as well as assessment of compliance, with the RWQCB response noted above. Suffice to say that we believe the financial analysis provided to date is vastly underestimated.

Response: We have provided an economic analysis that is based on the reasonably foreseeable means of compliance. We have provided a range of potential costs for several types of BMPs for 10 percent of urbanized areas. The costs may be scaled up or down depending on the planned percentage of urbanized areas where structural controls will be implemented. The methods to comply with the TMDLs will be selected by the dischargers. What methods are selected will determine the cost of implementation. The estimated cost ranges are based on the sources cited in the economic analysis, which are accepted industry costs. We do not believe the economic analysis is underestimated.

Comment 296

Based on our detailed review of this most recent version of the TMDL document including Appendix S, it is clear that 1) other interested organizations and agencies shared many of the same concerns we expressed, 2) many of our comments were not addressed in a substantive manner, and 3) on many of the issues that we perceive to be most critical, we have reached a scientific and/or technical impasse with Board staff.

For example, we have been and continue to be particularly concerned that the selected technical approach for the TMDL may not lead to enhancements in beneficial use protection that are commensurate with the expenditure of potentially significant public funds that will be required to achieve the required bacteria loading reduction in the various watersheds. Heal the Bay expressed a similar concern in their comments (P. S-89) indicating that the TMDL would not lead to attainment of the water quality standards. Board staff continue to support the position that this approach is the most suitable for the impaired waters addressed in this TMDL, although the approach employed for this TMDL appears not to have been used previously (the TMDL document indicates that two previous TMDLs have used a similar method of expressing the allocations, however the technical approach used for TMDL LA and WLA development employed in this TMDL is substantially different than those cited), and is apparently intentionally ambiguous in terms of measuring compliance. During the February 2006 Regional Board meeting, former Board Chairman Minan requested staff to provide “the support for why that approach (expressing wasteload reductions as million MPN/year) is better than the approach taken with respect to Santa Monica Bay”. In our opinion, the explanation provided by Board staff (p. S-119)² is inaccurate and not sufficient to overcome the serious shortcomings noted above.

Response: The WLAs and LAs and existing loads calculated in the watershed models provide a basic understanding of where bacteria loads may be reduced to meet the TMDLs. While expressing the TMDLs in terms of “exceedance days” may give the dischargers the impression that it will be allowable for WLAs to be exceeded, it is not a metric that can be used by watershed managers to identify where bacteria loads can be reduced. The primary goal of the TMDLs is to restore the water quality of the impaired water bodies to support the designated beneficial uses.

2 . “A metric expressed in a term different from a load, such as exceedance days (as has been approved by the LA RWQCB and SWRCB) does not allow program managers to decipher a percentage by which loads must be reduced, nor help with selection of BMPs

Million MPN/year may or may not be used as a metric for compliance, but is used in this TMDL as a metric for identifying controllable bacteria sources that require load reductions. The TMDLs are calculated using numeric targets based on water quality objectives in the Ocean Plan and Basin Plan for indicator bacteria. If the water quality objectives are met, the water quality supports the designated beneficial uses. This essentially means that compliance with the water quality objectives in the Ocean Plan and/or Basin Plan will restore the water quality that will support the designated beneficial uses and, thus, will result in compliance with the TMDLs.

Reducing the bacteria loads in the receiving waters will likely require a reduction of bacteria sources as well as end of pipe treatment. The costs associated with end of pipe treatment can be prohibitively expensive if the bacteria sources are not adequately controlled. If the dischargers believe end of pipe treatment methods are the only means that may be implemented to comply with the TMDLs, then we can understand a statement such as *“the TMDL may not lead to enhancements in beneficial use protection that are commensurate with the expenditure of potentially significant public funds that will be required to achieve the required bacteria loading reduction in the various watersheds”* can be made. However, source control methods (i.e., public education, and developing and enforcing ordinances) can significantly reduce pollutant loads with comparatively low expenses. We encourage the dischargers to explore the effectiveness of source control before concluding that bacteria pollutant loads cannot be reduced to meet the TMDLs.

Comment 297

The draft report indicates the wet weather numeric targets were set equal to the single sample maximum WQS (p.35), where the basis for the WQS are as follows:

“The REC-1 WQOs for indicator bacteria that are applicable to the Pacific Ocean shoreline are contained in the Ocean Plan (SWRCB, 2005). Those applicable to inland surface waters are contained in the Basin Plan. The objectives contained in both Plans are derived from water quality criteria promulgated by the USEPA in 1976, 1986, and 2004. Both the Ocean Plan and Basin Plan contain REC-1 objectives for total coliform, fecal coliform, and enterococci, and SHELL objectives for total coliform. In addition, the Basin Plan contains REC-1 objectives for Escherichia coli (E. coli) for inland surface waters.” (P. 34).

This comment applies specifically to the single sample maximum values for the total coliform objective for the SHELL use and the fecal coliform objective for the REC-1 use for inland surface waters (that is, creek and streams). Based on the information presented in Appendix F, the relevant WQS are as follows:

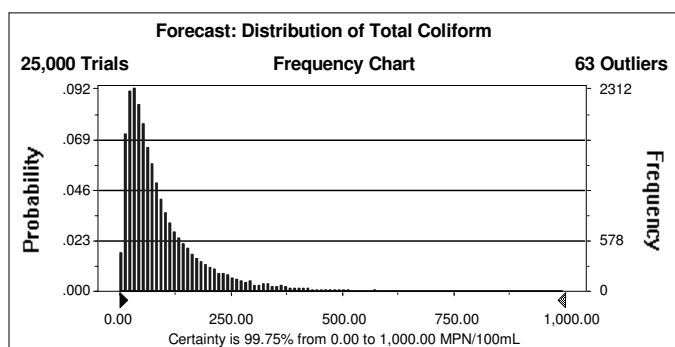
Fecal coliform WQS for REC-1 for inland waters: *Based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 per 100 ml, nor shall more than 10 percent of total samples during any 30-day period exceed 400 per 100 ml.*

Total coliform WQS for SHELL: *At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacteria objectives*

shall be maintained throughout the water column: The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

Table 4-2 indicates that the interim and final wet weather target for fecal coliform is 400MPN/100mL and the final wet weather target for total coliform is 230MPN/100mL (p.40). Further, the allowable loads were computed as the daily flows multiplied by the representative numeric targets to create a numeric target line across the load duration curve (pp64-65).

Based on this information, it appears that the allowable loads neglect the fact that in both cases the WQS are 90th percentile values, not values which are never to be exceeded. The potential implications in terms of allowable loads is significant, as illustrated below. Assuming that the distribution of bacterial indicators is lognormal with a 50th percentile (median) of 70MPN/100mL total coliform and 90th percentile of 230 MPN/100ml (as would be the case for the SHELL WQS), the expected distribution of TC for a waterbody meeting the WQS is as follows (obtained via simulation of 25,000 iterations, exact solution would vary slightly):



Summary statistics for this distribution are as follows:

%ile of Distribution	MPN/100 mL
0%	3
10%	21
20%	31
30%	42
40%	54
50%	68
60%	88
70%	112
80%	152
90%	229
91%	240
92%	252
93%	270
94%	288
95%	317
96%	348
97%	390
98%	460
99%	580
99.5%	730
99.7%	895
99.9%	1495

Inspection of these data clearly indicates that a 90th percentile drastically underestimates the maximum coliform densities that could be expected when a waterbody is in compliance with the WQS. For example, the data shown indicate that 1% of the time, total coliform densities above 580 MPN/100mL should be expected in a waterbody just meeting the applicable WQS, and 0.5% of the time total coliform densities above 730 MPN/100mL should be expected. When this information is considered in the context of the loading based approach employed for TMDL allocations, the potential impacts on the TMDL are substantial. For example, the bacterial loadings that would be associated with an observed total coliform concentration of 580 MPN/100mL (which would be expected 1% of the time in a waterbody meeting the WQS) could be up to 150% higher than the allowed load based on the methodology described in the Draft TMDL document.

A similar analysis can be developed of the fecal coliform WQS that apply to the REC-1 wet weather TMDLs for inland waters. Such an analysis (not shown) indicates that 1% of the time, fecal coliform densities above 690 MPN/100mL should be expected in a waterbody just meeting the applicable WQS, and 0.5% of the time fecal coliform densities above 800 MPN/100mL should be expected in such a waterbody. For comparative purposes, the allowable loads in the draft TMDL document are based on a maximum concentration of 200 MPN/100ml.

Thus, the allowed loads, as computed in the TMDL may substantially underestimate the loads that should be allowed under the methodology described in the draft document, based on the stringency of the WQS in the Basin Plan. Further, the differences noted above could be substantially greater than the usual 10% that is included as an explicit margin of safety.

If it was the intention of the Regional Board to set the stringency of the TMDL equal to that of the applicable WQS (with a reasonable and appropriate margin of safety), it

appears that the loading (and all subsequent) calculations corresponding to the single sample maximum values for the total coliform objective for the SHELL use and the fecal coliform objective for the REC-1 use for inland surface waters may need revision.

Response: While the commenter's statistical analysis is technically correct, there are several points that should be acknowledged.

First, there may be water samples collected with bacteria densities that exceed the single sample maximum numeric targets selected for the TMDLs that could still statistically be in compliance with the water quality objectives found in the Basin Plan. However, in our experience, seldom do the dischargers collect enough samples in a month to statistically demonstrate that a high bacteria density result is either an anomaly or within a statistically acceptable range. Additionally, if we were to take the statistical example provided by the commenter to the extreme, technically the "maximum" result could be infinity, given the asymptotic result of the simulation, which is obviously not acceptable under any circumstances.

Second, the water quality objectives of the Ocean Plan, included in the discussion of applicable water quality objectives in Appendix F of the Technical Report, are also a factor in selecting the numeric target. The Ocean Plan states that the single sample maximum fecal coliform density shall not exceed 400 MPN/100 ml. Because all the water bodies in this TMDL are within the ocean, or ultimately discharge into the ocean, the water quality must be consistent with the water quality objectives in the Ocean Plan.

The numeric targets for the TMDLs were selected to be protective of water quality under "critical" conditions and protective of beneficial uses designated in the Basin Plan and Ocean Plan. The commenter has not provided any evidence to show that the numeric targets could be increased and still be protective of beneficial uses under "critical" conditions.

Comment 298

Comment 33a. In a letter to the SWRCB dated January 31, 2006, the San Diego Water Board recommended that all waterbodies, regardless of quality during dry weather, remain listed if no wet weather data is available to demonstrate support of beneficial uses. Even if the waterbodies in question are de-listed in the 2008 list evaluation, they will be included in this TMDL project. Please see the response to Comment 190 for further discussion.

The response does not address the comment. The comment was that draft SWRCB policy and guidance for the development of TMDLs has not been followed. According to the SWRCB policy, the original listing of the water body should be re-evaluated based on current existing data. According to the State Regulatory Structure and Options Policy, "If the water body is neither impaired nor threatened, the appropriate regulatory response is to delist the water body." The SDRWQCB recommendation regarding listing waterbodies does not conform with the SWRCB Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List.

Response: The existing data were evaluated in the early stages of TMDL development, and during the 2006 303(d) process. Although beaches in the Scripps and Miramar

Reservoir Hydrologic Subareas were delisted by the State Water Board in 2006, the Technical Report has been revised to provide an explanation for why we are proposing TMDLs for these beaches. Please see Appendix T.

Comment 299

Comment 33b. *The San Diego Water Board has no basis to reject the Ocean Plan WQOs and use different ones.*

The response does not address the comment. It is not suggested that the WQOs be rejected. Rather our comment was to indicate that the appropriateness of the uses be evaluated for some of the listed sites. In fact, changes have been made to this version of the TMDL document that are consistent with this comment. For example, refer to page 39 and Table 4-2. Our original concerns remain, and we believe that the Regional Board has much more leeway and authority in interpreting the Basin Plan than has been exercised to date.

Response: The beneficial uses are designated in the Basin Plan and Ocean Plan. Any de-designation of a beneficial use for a water body could only occur after a Use Attainability Analysis and Basin Plan amendment, which would require significant evidence as well as public input. This type of analysis is beyond the scope of these TMDLs. Further, the dischargers have not yet provided convincing evidence that the San Diego Water Board should pursue a standards action rather than a TMDL to address the bacteria listings. If this information is developed, it can be brought to the San Diego Water Board for consideration at any time.

Comment 300

Comment 34. *The analysis of hydrologic model error based on volumetric comparisons provided sufficient evaluation of model error for purposes of this study.*

As one example illustrating our concerns with the TMDL modeling and performance, please consider the following text from Appendix K. *“The methodology for estimating fecal coliform concentrations was not as successful for prediction of total coliform and enterococci. Similar regression analyses were performed to determine whether there are relationships between total coliform and enterococci and land use and subwatershed size, but no acceptable correlations were found. As a result, a separate approach was used for estimating total coliform and enterococci concentrations in dry weather runoff for each subwatershed..... The following are the resulting equations obtained (units of fecal coliform and total coliform/enterococci are consistent): total coliform = $5.0324 \times \text{fecal coliform and enterococci}$ = $0.8466 \times \text{fecal coliform}$.”*

Given the available scientific information regarding the ubiquitous and substantial variability of indicator data in ambient waters, we question the robustness of the stated relationships with respect to temporal and spatial variability. Further, without any sensitivity analysis it is impossible to know how these point estimates for characterizing indicator densities impact the resultant TMDL loadings. Thus, it is difficult to understand what the basis was for accepting that the potential model error is sufficient for the purposes of this study.

Response: There were two models and approaches calibrated separately for TMDL development: a dynamic model for wet periods and a steady-state model for dry periods. The referenced text, *the analysis of hydrologic model error based on volumetric comparisons provided sufficient evaluation of model error for purposes of this study*, from the response to Comment 34 was used to describe the hydrologic calibration which the original comment stated *Calibration and validation of model performance are presented only as figures for a visual inspection. Some error analysis was conducted for the wet-weather hydrology, but not discussed*. The reference text was meant to address this comment. However, the response above refers to the dry weather model, and references discussions that are not relevant to the wet-weather hydrologic calibration discussion. Furthermore, the response uses as examples text from Appendix K that describes assumptions developed for the dry modeling approach, not calibration results or results meant to illustrate model accuracy. Separate calibration results were presented for illustration of the sufficiency of these assumptions to represent typical dry-weather bacterial densities.

Comment 301

Comment 35. *Evaluation of the sensitivity of modeling parameters was a key consideration during the model calibration process to provide modelers insight regarding parameters requiring adjustment.... To provide information recommended by the commenter on model uncertainty based on sensitivity analysis, many model input parameters would require adjustment based on high and low confidence interval values. However, such confidence intervals are not available for each parameter, which would result in an arbitrary selection of a confidence range (e.g., +/- 50% of the parameter value). As a result, sensitivity analyses would be informative regarding sensitivity of each input parameter, but ranges of predictive values are not directly transferable for determination of model uncertainty and a numeric MOS with confidence. Moreover, additional non-modeling assumptions were considered in the implicit MOS of the TMDL, and quantitative measures of each of these assumptions relative to modeling assumptions will also require further study.*

The uncertainty in the modeling is acceptable for the regulatory decisions required in this TMDL which is based on the best available data and method of analysis. We acknowledge that the development of the bacteria TMDLs is characterized by data gaps and uncertainties. Scientific uncertainty is a reality within all water quality programs, including the TMDL program, and it cannot be entirely eliminated. The TMDL program must move forward in the face of these uncertainties if progress in establishing TMDLs and attaining WQOs in impaired waters is to be made.

Based on the responses in the first paragraph above, it appears that the Board staff appreciate the technical importance of this comment. However, science policy decisions, as described in the subsequent paragraph are flawed. For example, no information is presented to suggest that the uncertainty is acceptable. While we agree that improvements to water quality are necessary, the appropriate balancing of resources with benefits is conditional on the best possible inferences from the available science which therefore requires a high level of transparency and rigor, to the degree feasible. Thus, as suggested in the original comment, sensitivity and

uncertainty analyses should be conducted and used to evaluate and/or verify the potential impacts on the loading required by the TMDL.

Response: As stated in the original response to this comment, *To provide information recommended by the commenter on model uncertainty based on sensitivity analysis, many model input parameters would require adjustment based on high and low confidence interval values. However, such confidence intervals are not available for each parameter, which would result in an arbitrary selection of a confidence range (e.g., plus or minus 50 percent of the parameter value). As a result, sensitivity analyses would be informative regarding sensitivity of each input parameter, but ranges of predictive values are not directly transferable for determination of model uncertainty and a numeric MOS with confidence.* The commenter should be aware that each parameter can have different impacts on results, and arbitrary selection of a range for that parameter, such as the parameter values plus and minus 20 percent or 50 percent, does not have meaningful translation when evaluating impacts of model results on TMDL load estimates.

The model calibration results were sufficient to use the models for science policy decisions such as this TMDL. These results represent the present state of the science in modeling indicator bacteria loads in the region for both wet and dry conditions. Further technical peer review verified this opinion as the reviewers were specifically asked whether modeling assumptions or results were sufficient. None of these independent, unbiased, peer reviewers suggested that these models or their applications were insufficient for the TMDL.

As more water quality and flow data are collected in the waterbodies addressed in this TMDL, the models can be further tested and additional uncertainty analyses can be performed in the future. We encourage stakeholders to collect such data and further test model uncertainty under an expanded range of hydrologic and pollutant loading conditions. These results will prove useful in working with the San Diego Water Board to evaluate the implementation of the TMDL and ensure that future resources and benefits are balanced with the latest and most up-to-date state of the science.

Comment 302

Comment 36. *An explicit MOS is not required for calculation of TMDLs.*

Our comment was that the report should explicitly list each of the conservative assumptions used to form the MOS and (at least) discuss the potential relative magnitude of the assumption's importance on the estimated loading capacity. The response does not address the comment.

Response: The report explicitly *lists* the modeling and non-modeling assumptions in Appendix L and section 8.1.7. Quantitatively describing the impact of each individual assumption is equal to describing an explicit assumption, which was the basis of the original response to the comment. Implicit conservative assumptions are acceptable for TMDL development, and do not require quantification or translation into explicit assumptions with defined quantitative impacts on TMDL results.

Comment 303

Comment 37. *The average flows calculated for the dry-weather model were based on dry weather monitoring data collected from Aliso Creek, Rose Creek, and Tecolote Creek. These average flows were relatively small, ranging from 0.007 to 0.23 cfs. The differences between calculated median and average (mean) flows are less than 0.05 cfs, which are negligible. Moreover, the monitoring data are unlikely to be accurate within this range. Thus, average flows are acceptable for estimation of dry-weather flows in this study.*

Our comment was that median flow values should be used (to compute loadings) since mean flow values will greatly increase the loading due to higher assumed flow. Based on the response it appears that monitoring data may not be sufficiently accurate to compute loadings, which brings into question the reductions required by the TMDL. While we understand that modeling is necessary in cases where sufficient data do not exist to make decisions, it is important that technical underpinnings are as correct as possible. The response above does not help to understand if/how the reductions required by the TMDL are accurate.

Response: As stated in the original response, *The differences between calculated median and average (mean) flows are less than 0.05 cubic feet per second (cfs), which are negligible. Moreover, the monitoring data are unlikely to be accurate within this range.* The difference of 0.05 cfs does not *greatly increase* the loading as stated in the response above. Also, the accuracy mentioned in the original response describes the ability to measure a difference of 0.05 cfs in the field, and in no way illustrates that *data may not be sufficiently accurate to compute loadings, which brings into question the reductions required by the TMDL*, as stated in the response above.

Comment 304

Comment 38. *The reference system approach, which will be incorporated into the Basin Plan permanently, accounts for discharges of bacteria from background sources.*

We encourage the Regional Board to adopt the TMDL and the Basin Plan amendment simultaneously so that there is no ambiguity on this point.

Dischargers are not required to reduce loads caused by background sources, even though these loads are eventually transmitted to receiving waters via MS4s.

Please clarify whether this statement is true throughout the year including the winter dry weather season.

Response: The statement is taken out of context with regard to the complete response to Comment 38, in which we discussed how the reference system approach accounts for background loads. Please see the response to Comment 292 where we clarify the statement about loads from background sources.

Comment 305

Comment 40. *The modeling analysis does not assume that there is a consistent relationship between flow and bacteria loads. Bacteria loads are assumed to be a*

function of land use types comprising each watershed, as discussed in the source analysis.

The response does not help to clarify the issue addressed in the comment. Section 5.3 of the TMDL indicates that fecal coliform levels varied throughout the year and were not related to flow. The text then indicates that “This indicates the need to assess bacteria separately during both wet weather events and dry weather conditions.” We do not understand the logic used to arrive at such a conclusion based on the observation presented. Please clarify this point.

Response: In Section 5.3, high bacteria densities were shown to occur during both dry and wet conditions. The statement, *this indicates the need to assess bacteria separately during both wet weather events and dry weather conditions*, simply means that since both conditions result in high bacteria densities, both conditions should be addressed in modeling analyses.

Comment 306

Comment 41. *Validation of modeling assumptions specific to land uses was limited by the lack of land use-specific water quality data collected in the San Diego Region.*

Thank you for the clarification. Our point was that “these data are so key to the model results” that the implications of the uncertainties need to be discussed.

Response: Lack of land-use-specific water quality data collected in the San Diego Region can lead to model uncertainty. However, this uncertainty cannot be evaluated or quantified until land-use-specific monitoring data are collected and available in the San Diego Region for comparison with model predictions.

Comment 307

Comment 42. *The steady-state approach for defining dry-weather flows and bacteria loads is acceptable and adequate for loading assessment and TMDL calculation. A steady-state approach for prediction of dry-weather flows is typical for source assessments used in TMDLs. Similar modeling approaches have been used for calculation of TMDLs in the Los Angeles Region where dry-weather runoff is also common, including TMDLs for Ballona Creek and Los Angeles River, and models currently under development by USEPA for estimation of dry-weather loads to San Gabriel River and Los Angeles and Long Beach Harbors.*

We indicated that the fundamental decision about which type of modeling to employ was based on the assumption that the Region is “*dominated by nonpoint sources that are generally constant on an hourly time step and deposit directly to drains*”. We further noted that there is no documentation given for the basis of this assumption about the behavior of nonpoint sources, nor is there any reference to more detail in an Appendix. The response to our comment does not substantively explain the technical decision that was made.

Response: As stated in the original response to this comment, *the assumption in the comment that the Region is “dominated by nonpoint sources that are generally constant*

on an hourly time step and deposit directly to drains” refers to wet weather, for which a LSPC model was developed that provides hourly predictions of flow and bacteria concentrations assumed constant during each hourly time step. This does not refer to an assumption used in selecting a dry-weather modeling approach, as stated by the comment. The text has been clarified to this effect. In other words, the stated assumption regarding the *dominated by nonpoint sources that are generally constant on an hourly time step and deposit directly to drains* is meant to refer to wet weather. This refers to the adequacy of the wet-weather model to simulate flows and bacteria densities at an hourly time-step. It is unclear given the statement quoted above from the response to the comment, in addition to the new response provided above, what the new response is referring to regarding the technical decision made. We are confident that an hourly timestep is sufficient to model and characterize wet-weather flows and bacteria densities, and does not require more-detailed discussion, justification, or documentation in the report. Since the rainfall data is typically provided at an hourly time-step, and the models are based on rainfall for model input, the model cannot be expected to provide simulation at a time-step less than an hour.

Comment 308

Comment 43. The TMDL must provide protection of receiving waters during all periods when the designated use is applicable, including periods most impacted by watershed flows, the wettest year was used as the critical period for TMDL calculation. Reduction in bacteria loads calculated based on the critical wet year provides assurance that load reductions will be sufficient during all periods.

We indicated that it would be useful to see model runs that show the sensitivity of the TMDL targets to different rainfall years, and that the choice of this particular year seems arbitrary. We continue to believe that without some sensitivity analysis, the implications of the selected year are unknown.

Response: As stated in the original response, *The critical wet year was the wettest year of the model simulation period based on rainfall data used to develop the wet-weather model. The model simulation period was from 1990 through 2002. Year 1993 was characterized with the most rainfall, and produced more flows and resulting loading of bacteria to receiving waters than any other year during the simulation period. Since the TMDL must provide protection of receiving waters during all periods when the designated use is applicable, including periods most impacted by watershed flows, the wettest year was used as the critical period for TMDL calculation. Reduction in bacteria loads calculated based on the critical wet year provides assurance that load reductions will be sufficient during all periods. The same critical wet year was used in calculation of TMDLs for Santa Monica Bay Beaches in the Los Angeles Region. Therefore, selection of this critical period was not arbitrary.* Sensitivity analysis is irrelevant when considering that the criterion for selection of the critical period was the wettest from 1990 through 2002 modeled (and is also the wettest through 2006). Any sensitivity analysis will still show that 1993 was the wettest year for this period.

Comment 309

Comment 44. *Bacteria loading was modeled as a function of land use, and all land uses have both natural sources (wildlife) and anthropogenic sources of bacteria. Once pollutants are washed into an MS4, municipalities are responsible for these pollutants in the waste stream discharged from the MS4s.*

This comment seems to be in conflict with the response to comment #38, which indicates: “Dischargers are not required to reduce loads caused by background sources, even though these loads are eventually transmitted to receiving waters via MS4s.” Please clarify.

Response: The dischargers are responsible for any bacteria loads that are discharged from the MS4s. However, if the dischargers can demonstrate that the bacteria loads from the MS4s are not from anthropogenic sources, then those loads may be considered background or natural loads for the purpose of calculating a TMDL under the natural sources exclusion approach. With the reference system approach, an allowable exceedance load is calculated based on the exceedance frequency in a reference system. The allowable exceedance load represents the non-anthropogenic loading in the urban watershed that causes allowable exceedance of WQOs.

Comment 310

Comment 45. *The bacteria TMDLs must ensure that WQOs are met in all conditions and at all times. The REC-1 beneficial use is a component of a water quality standard and is not intended to be used as a risk management index that calculates a level of risk. The bacteria TMDLs will not address issues dealing with the appropriateness of existing REC-1 beneficial uses or the bacteria water quality standards in the Ocean Plan. These types of issues are more appropriately addressed by amending the WQOs in the Ocean Plan through the formal amendment process.*

This response did not address the comment. The important issue is whether or not REC-1 is appropriately designated for creeks and streams during storm events. While it is agreed that this TMDL may not be the appropriate venue for resolving the question, the question is germane in that the TMDL requires municipal agencies to reduce bacterial loadings during storm events based on the assumption that the designations are appropriate during storm events. The Santa Ana RWQCB has recognized this as an important issue also and is considering how to rectify the issue in their jurisdiction. The SD RWQCB should consider this issue in the near future and the TMDL should be subsequently amended.

The commenter should also keep in mind that the wet weather TMDLs address not just the period of the storm, but the 72 hours after cessation of rainfall when bacteria levels remain high at beaches. Weather can improve significantly within 1 to 3 days of a storm, so the assumption that inclement weather keeps swimmers out of the water during storm flow conditions is not entirely correct.

Please clarify whether the loading (flow times concentration) that occurs during the 72 hours following a storm is considered to be part of the wet or dry weather TMDL allocation.

Response: For the response to the first part of this comment, please see the response to Comment 299.

The peak of the flow from a watershed after a storm may not occur until after the storm ends. The loading that occurs during the storm flow is considered to be part of the wet weather TMDL allocation. For TMDL calculations, we included the 3 days (72 hours) after a storm in the wet weather load calculations.

Comment 311

Comment 47. Bacteria loading from urban creeks should be reduced even though open space loading exceeds the capacity of the creeks and beaches because pet waste and human sewage are more likely to occur in urban runoff. We recognize that it will be difficult for dischargers to meet final allocations and WQOs during wet weather. Therefore, we are developing a Basin Plan amendment to permanently incorporate a reference system/natural sources exclusion approach for implementing bacteria WQOs.

This response highlights the importance of adopting the Basin Plan Amendment at the same time as the TMDL to ensure that the TMDL is implementable.

Response: The Basin Plan amendment is a high priority for the San Diego Water Board. In the Implementation Plan, the San Diego Water Board has committed to consider the Basin Plan amendment and revise the wet weather TMDLs within one year of OAL approval of these TMDLs. Further, the dischargers will not be required to submit Bacteria Load Reduction Plans for the final wet weather TMDLs until after the San Diego Water Board takes that action.

Comment 312

Comment 90. The methodology used to develop allocations ... was designed to produce proportional load reductions among the two main discharger categories. In formulating this methodology, we attempted to use a fair approach to developing load allocations and reductions. Setting allocations proportional to existing loading was the way we chose to accomplish this. We agree that agricultural and livestock practices lend themselves to the opportunity for water quality control. Agricultural and livestock dischargers may be able to meet their allocations easier or faster than MS4 dischargers, or achieve that load reductions in excess of 13 percent. This could create an opportunity for trading pollution credit. Municipal dischargers could meet their reductions by paying for BMPs to achieve higher load reductions from agricultural and livestock facilities.

While this comment provides insight towards understanding how the decision was made, it seems inequitable, unreasonable, and arbitrary. We encourage the Board to reconsider this policy decision and formulate a policy that emphasizes reductions of loadings based on ease (and cost) of implementation in conjunction with the likely benefits associated with such reductions (i.e. those that are easy and inexpensive should be required first).

Response: The decision was made based on the model results showing that the MS4s are the largest controllable sources of bacteria. Reduction of bacteria loads from the largest controllable sources of bacteria should be the first focus of the efforts to meet the TMDLs. Load reductions from the largest controllable sources of bacteria will further

highlight and help identify the sources of loading that is occurring from smaller controllable sources of bacteria.

Methods of implementation are more appropriately discussed in a stakeholder process prior to submission of the Pollutant Load Reduction Plans. The MS4 dischargers should propose both compliance methods and assessment locations in their Pollutant Load Reduction Plans, which will be unique to each watershed. The compliance methods and assessment locations will help the dischargers determine where and what types of BMPs should be implemented. The dischargers must decide which methods, in terms of ease and expense, will be implemented first.

Comment 313

Comment 96. Dry-weather loads were not predicted based on the arithmetic average bacteria densities, but were based on the regression analyses of the geometric mean of bacteria densities observed in multiple streams throughout the San Diego Region, as discussed on page K-7 of Appendix K.

The response does not address the comment. The point of the comment is that the loading based approach using the geometric mean WQO times the average flow as the basis for the allowable loading, unintentionally imposes WQS more stringent than those in the basin plan. For example, assume for the sake of simplicity that the flow in a hypothetical stream covered by the TMDL is constant for a whole month and that daily (30) fecal coliform observations are available for the stream. The allowable loading based on the stated approach (p.68) would be the geometric WQO (200 MPN/100mL) times a constant times 30 days. The actual loading (based on observed data) would be the sum of each of the observations times the same constant. Thus to meet the allowable load, the sum of the 30 observations would need to be less than the geometric mean standard times 30 (or equivalently the arithmetic average of the observed data must be no greater than the geometric mean WQO). The response to comment 140 confirms this: *Conceptually, the sum of the bacteria loads from the creek or river at the shoreline from every day in a given month must be less than or equal to the dry weather TMDL.* The point is that this method inadvertently requires the average value (sum/#observations) to equal the geometric mean standard. Because bacterial indicator data are typically lognormally distributed (right skewed), this effectively puts in place a standard that is more stringent than in the Basin Plan.

Response: The method for implementing, monitoring, and reporting compliance with the dry weather wasteload allocation has not been specified in this TMDL, and will not be determined until wasteload allocations are ultimately incorporated into the revised MS4 permits. As an example of an alternative to the approach mentioned by the commenter, the 30-day geometric mean of observed daily (or weekly, which has also yet to be determined for specification in the revised MS4 permit) bacteria densities can first be calculated, and this value can then be multiplied by the sum of the daily flows. This will not result in comparison of an arithmetic average verses a geometric mean. There are other options for implementing the TMDL, which will be fully described in the revised MS4 permit.

Comment 314

I'm curious please explain what is a "waste metabolizing bacteria" is. The reference to this is found on page 144 in the landfills section.

Response: "Waste metabolizing bacteria" breakdown volatile organic compounds (VOCs) in a landfill (e.g. petroleum hydrocarbons, chlorinated solvents). The bacteria are naturally occurring, but can be increased in the landfill by adding food sources, or additional cultures to speed up the breakdown of VOCs if necessary. Naturally occurring bacteria break down almost anything organic in the landfill.

Comment 315

With regard to achieving the zero Wasteload Allocation in any size storm, is there data to suggest that the facilities shown in R-67 or R-70 would lead to compliance with this TMDL?

Response: The facilities shown are examples of BMPs that may be implemented by the dischargers. At this time we have not determined how compliance with the TMDLs will be measured because these details are not necessary at this stage. Methods for determining compliance are more appropriately discussed in a stakeholder process prior to submission of the Pollutant Load Reduction Plans. The dischargers should propose compliance methods, assessment locations, and compliance metrics in their Pollutant Load Reduction Plans, which may be unique to each watershed.

Comment 316

Please describe how a bacteria loading at the "critical point" (modeled as being above the tidal prism, approximately one mile from the nearest beach in the San Diego River) is related to achieving receiving water standards at the beaches at the base of the river. This assumption is the foundation of the TMDL, the proposed Waste Load Allocations, and BMP requirements.

Response: The critical point is a node in the model representing the culmination point at the bottom of the watershed, before intertidal mixing and dilution takes place. Conceptually, this critical point is the place where freshwater and saltwater meet. The actual location in the watershed where freshwater and saltwater meet will depend on the time of day and year, but may be well inland during extreme high tides, and at the beaches of the coast during extreme low tides. During extreme low tides, when the freshwater conceptually may be discharging directly to the beach, the water quality objectives of the freshwater must comply with the water quality objectives of the beach waters. Thus, the critical point must meet the water quality objectives of both inland surface waters and surface waters at the beaches. Also, by calculating the TMDLs at the "critical point," we incorporated an implicit margin of safety into the TMDLs by not considering any dilution of creek water in the wave wash of the beach.

4.3 Water Quality Objectives/Indicator Bacteria

Comment 317

Comment 106. Our comment was: The best available science clearly indicates that 2 of the 3 indicator organisms employed in the TMDL (total and fecal coliform) are uncorrelated with risk to human health and thus, to the protection of the beneficial use. We believe that the Regional Board should consider the policy implications of this assumption relative to current and future listings, as well as the implications of this assumption as it constrains the ability of the staff to evaluate impairment based on the best available scientific information. Staff efforts should be focused on the indicator(s) that has (have) the strongest link to public health protection (enterococci) and that will result in true protection of beneficial uses. Limited resources should not be spent on controlling indicators that do not correlate with protecting public health.

The response was: *Since the Basin Plan and Ocean Plan include WQOs for total and fecal coliform, we are required to develop TMDLs for waterbodies not meeting these WQOs. We agree that efforts by all parties should be focused on the indicators that have the strongest link to public health issues and will result in true protection of beneficial uses; therefore we encourage dischargers to focus their efforts on abating anthropogenic sources of bacteria.*

We believe that the Regional Board has more authority than alluded to in this comment. There is not credible epidemiological evidence linking either total coliform or fecal coliform with health effects in humans via recreational activities. The large base of scientific information strongly indicates that the indicators recommended by USEPA, at the current time are the best available (*E. coli* and/or enterococci). Our comment was not to revise the objectives, but rather to “consider the policy implications of this assumption relative to current and future listings, as well as the implications of this assumption as it constrains the ability of the staff to evaluate impairment based on the best available scientific information”. Further, we feel very strongly that efforts and resources should be focused on the indicators that have the strongest link to public health protection (*E. coli* and enterococcus). Such an effort would be most likely to result in true protection of beneficial uses.

Response: We do not have the authority to develop TMDLs for some bacteria WQOs and not others. We are required to adopt TMDLs for all bacteria WQOs in the Ocean Plan and Basin Plan for the affected waterbodies, or else undertake a standards action to either de-designate the beneficial use or revise the WQO. The bacteria objectives in the Ocean Plan were revised by the State Water Board in 2005 to include a WQO for enterococci. However, the State Water Board retained WQOs for total and fecal coliform in the Ocean Plan at that time. Thus, we are required to develop and adopt TMDLs for those WQOs.

Further, we disagree that total coliform and fecal coliform levels are not positively correlated to adverse health outcomes, and that the TMDLs should focus on the enterococci WQO. An independent technical group, the Microbiological Advisory

Committee (MAC) was formed in 1992 to advise the State Water Board on the indicator organism issue. As a starting point, the MAC recommended a statistical analysis of two data sets which included concurrent measurement of all three indicators. A contract was initiated with the University of California, Berkeley (UC Berkeley) in 1993, stipulating the following:

- a. at each monitoring station, for each month and for each individual indicator organism, the number of times the measured level exceeded the allowable value contained in the California Ocean Plan was determined; and,
- b. for each monitoring station, the density of indicator organisms were compared against each other and to physical parameters measured at the same time (water temperature, salinity, dissolved oxygen, etc.).

The contract also required that recent epidemiological studies be reviewed, summarized, and related (if possible) to the discharger data analyses. Based on review of both discharger monitoring data and results of recent epidemiological studies, UC Berkeley was to make recommendations for possible revision of the California Ocean Plan water-contact bacterial standards.

Because there was interest in the environmental fate of indicator organisms based on monitoring data taken over a time course of several years and under diverse environmental conditions, data from the City of San Diego and the City and County of San Francisco were analyzed. The study³ concluded that:

- when fecal contamination is present, all three indicators respond similarly;
- during less polluted periods, this relationship breaks down and the three indicator organisms vary independently;
- from a risk management perspective, the measurement of enterococci levels seems to add little to the information provided by total and fecal coliform data;
- where there is increased likelihood of fecal contamination, enterococci levels are well predicted by the fecal coliform measurement; and
- based on these findings, the California Ocean Plan could revert to the pre-1990 bacterial monitoring requirements calling for total and fecal coliform only.

As part of the UC Berkeley contract, five epidemiological studies were reviewed.⁴ In general, these five studies consistently show that bathing at beaches where the water is contaminated by urban runoff, domestic wastewater discharges, or other swimmers can lead to an increased risk of gastrointestinal and respiratory disorders, as well as ear, eye, and skin infections in some circumstances. However, there is no consistent relationship between any one indicator and health endpoints. In a 1996 report, Fleisher, *et al.* concluded that even within a single study, different indicators predict different health endpoints and that “these findings argue against the use of a single illness or indicator organism in the establishment of marine standards for recreational water quality.” A complete explanation for retaining the total coliform and fecal coliform WQOs in the Ocean Plan is discussed in the State Water Board document titled “Final Functional

³ Spear et al, 1998.

⁴ Cheung et al, 1990; Fleisher et al, 1993; Corbett et al, 1993; Kay et al, 1994; and Haile et al, 1996.

Equivalent Document, Amendment to the Water Quality Control Plan for Ocean Waters of California” dated December 2004 which can be accessed at <http://www.waterboards.ca.gov/plnspols/docs/oplans/bactffed.pdf>.

Comment 318

Comment 107. *We disagree that traditional indicator bacteria provide “unreliable” estimates of potential public health impacts; however, we recognize that the accuracy of the correlation of bacteria densities to health risks is the subject of recent discussions. Please refer to the citations below. In particular, see page 6 and Table 2 in the 1986 US EPA document which indicates: “The freshwater studies confirmed the findings of the marine studies with respect to enterococci and fecal coliforms in that the densities of the former in bathing water showed strong correlation with swimming associated gastroenteritis rates and densities of the latter showed no correlation at all.”*

Pruss A. 1998. Review of Epidemiological Studies on Health Effects from Exposure to Recreational Water. Int. J. Epidemiol. 27: 1-9.

Wade TJ, Pai N, Eisenberg J, Colford JM. 2003. Do US EPA water quality guidelines for recreational waters prevent gastrointestinal illness? A systematic review and meta-analysis. Environ. Heal. Perspec. 111: 1102-1109.

U.S. EPA. 1986, Ambient water quality criteria for bacteria, Office of Water, EPA440/5-84-002, Washington, DC,

TMDL calculations must be based on existing WQOs. Reevaluation of water quality criteria that are the basis for WQOs cited in the Basin Plan takes place at the USEPA level. Should USEPA promulgate new water criteria, then the WQOs in the Basin Plan will be updated accordingly and TMDLs recalculated.

Please refer to comment #106. We find the second portion of the comment hard to understand, as we are encouraging the Regional Board to focus on the information that has been available from and recommended by EPA since 1986.

We further disagree with the commenter that achieving the TMDL targets might not result in the desired outcome, i.e. lowering public health risk. If the numeric targets are overly conservative in terms of lowering risk to public health, then the desired policy outcome (sufficiently high receiving water quality) has been achieved if WQOs have been attained.

If there is no scientifically defensible relation between the indicators in question (total coliform and fecal coliform) and health risk (EPA, 1986), then reductions of those indicators would not correlate with a reduced risk to human health.

Response: Please see the response to Comment 317 which summarizes the scientific basis for retaining the total coliform and fecal coliform WQOs in the Ocean Plan. Based on the information considered by the State Water Board in its 2005 amendments to the Ocean Plan, we disagree that there is no scientifically defensible relation between total coliform and fecal coliform, and health risk.

Comment 319

Comment 112. *We are obligated to proceed with utilizing WQOs consisting of total coliform, fecal coliform, and enterococci bacteria to calculate TMDLs because they are the established indicators of risk to public health. Under Clean Water Act (CWA) section 303(d), the San Diego Water Board is obligated to develop TMDLs for waters not meeting water quality standards (WQOs and the beneficial uses they are designated to protect). TMDL calculations must be based on existing WQOs.*

It is agreed that the TMDL must include all of these indicators. The Regional Board does have the authority to focus the TMDL on the indicators that have the strongest link to human health risk. It seems hard to believe that EPA would not approve a TMDL that employed as its basis the indicators that are recommended in their 1986 ambient water quality criteria document.

Response: Please see the response to Comment 317 which summarizes the scientific basis for retaining the total coliform and fecal coliform WQOs in the Ocean Plan. Based on the information considered by the State Water Board in its 2005 amendments to the Ocean Plan, we cannot recommend focusing the bacteria TMDLs on the enterococci WQO.

Comment 320

Comment 113. *...we do not agree that it (the 1986 EPA ambient water quality criteria document) indicates that the single sample maximum was not intended to apply during wet weather events in general.*

In southern California and the San Diego Region, the beaches are open year-round, even during wet weather conditions. There are many members of the public that may recreate in the water during wet weather (e.g., surfers). Therefore, protection must be adequate year-round and during wet weather conditions.

The 1986 US EPA document is not explicit on this topic. It states the following: "In general, samples should be collected during dry weather periods to establish so-called "steady state" conditions. Special studies may be necessary to evaluate the effects of wet weather conditions on waters of interest especially if sanitary surveys indicate the area may be subject to storm water effects." We discussed this point in detail with individuals who were involved in the development of the document in question at US EPA. Those conversations confirmed that in fact there is little to no reason to believe that the relationships are valid under stormwater dominated conditions. Further evidence on this point may be found in a newly released research report from the Water Environment Research Foundation (WERF Report 03-SW-2, 2007).

We agree that the REC-1 use occurs and is appropriate at beaches during wet weather. It is questioned however, whether or not the REC-1 use is appropriate for creeks and streams during wet weather (greater than some specified flow), and how the assumption that it is appropriate impacts the magnitude of the bacterial reductions that are required and the subsequent societal and economic impacts under this TMDL.

Response: We fully vetted these TMDLs via our USEPA liaison, and the TMDLs were peer reviewed. Thus, we maintain that the single sample maximum is appropriate to use as a numeric target for wet weather TMDL calculations. Whether REC-1 use exists during wet weather is a Basin Planning issue which can be evaluated if information is forthcoming and if the action is warranted.

Comment 321

Please describe the empirical basis for the statement on page R-67 of the Environmental Analysis which describes how structural controls may not be required for residential areas (i.e., is there an example of how a discharger has achieved a zero Wasteload Allocation for indicator bacteria in dry and wet weather with non-structural controls?)

How would the Regional Board staff expect dischargers to show compliance with zero Wasteload Allocation given that the detection limit of standard laboratory analytical procedures are greater than zero?

Response: Dry weather wasteload allocations can be met by completely eliminating dry weather nuisance flows via city ordinances and enforcement. Empirically, where there are zero flows, the WLA is automatically met.

For the interim wet weather TMDLs, the question is moot because zero WLA are not required. However, in order for municipal dischargers to meet the current interim wet weather targets (which are near or at what the final TMDLs will be after the reference watershed approach has been incorporated), they must reduce their current bacteria contribution by certain percentages for all three indicators (e.g. fecal coliform, enterococci, and total coliform), depending on the watershed. For all the watersheds, these percent reductions fall within the following ranges:

Fecal Coliform - 1.6 to 53.3 percent

Enterococci - 1.9 to 51.4 percent

Total Coliform - 1.6 to 47.0 percent

The amount of required reduction depends on the watershed, with some watersheds requiring less than 2 percent reduction, thereby allowing more than 98 percent of the current municipal load to continue. On the other hand the largest required reduction will be less than 54 percent, thereby allowing more than 46 percent of the current municipal load to continue. The San Diego Water Board believes that the municipalities are capable of achieving 2 to 54 percent reductions via a combination of aggressive non-structural and structural BMPs.

Concerning laboratory detection limits, the San Diego Water Board would consider a laboratory result showing bacteria below the detection limit as meeting the WLA, assuming one-half the detection limit is less than the bacteria WQO. This is consistent with the typical methods used in handling non-detect results in human health and ecological risk assessments.

Comment 322

EPA supports the Regional Board's use of the natural sources exclusion approach (NSEA) to develop numeric targets and allocations to protect recreational uses in waters of San Diego. EPA has approved such use in other bacteria TMDLs (e.g., Santa Monica Bay Bacteria TMDL, Los Angeles River Bacteria TMDLs). We support Regional Board's use of the NSEA approach to address recreational beneficial uses in the identified beaches and creeks of San Diego.

In addition, we have been in discussion with you to determine if sufficient data exists to support development of a TMDL and whether the NSEA approach can appropriately address the need to protect the shellfish harvesting use. At this point, we support deferring the establishment of TMDLs to address the shellfish harvesting use; this deferral would allow more time for monitoring, impairment assessment, and numeric targets development that are appropriate to address the impaired shellfish harvesting use. Although NSEA provides a mechanism to address non-human sources of bacteria, it was originally intended to address recreational uses in coastal waters (see 2004 final rule for *Water Quality Standards for Coastal and Great Lakes Recreation Waters*).

The existing standards for shellfish designated areas, currently incorporated in the Basin Plan, originated from the National Shellfish Sanitation Program (NSSP). These standards are used by the California Department of Health Services (DHS) to approve shellfish beds for commercial use. More extensive monitoring, sanitary surveys and an epidemiological study would assist in the establishment of TMDLs to protect the shellfish harvesting use. We hope to see some of this work included in the implementation plan for the bacteria TMDL to address recreational uses in San Diego beaches and creeks; this will assist with the development of a TMDL to address the shellfish harvesting beneficial use.

Response: Thank you for the comment. The SHELL TMDLs have been removed from these bacteria TMDLs, and the SHELL impairments are being addressed in separate TMDLs and/or standards action. At this time we have not required work related to the SHELL standard in the Implementation Plan. However, the San Diego Water Board will use its investigative authority, if needed, to require dischargers to submit technical reports with the information we need to refine the SHELL TMDLs and/or develop a SHELL standards action to address the SHELL listings.

4.4 Beneficial Uses

Comment 323

Page S - 126 states "We agree that, at this time, there is uncertainty for the regulated entities regarding which metric will be used to express WQBELs and measure compliance. However, the public process associated with reissuance of NPDES requirements is the proper forum for establishing this metric."

The NPDES reissuance public process for south Orange County is occurring now and TMDL compliance has yet to be addressed. The RWQCB has indicated that this could occur at the scheduled Permit issuance date or before, if appropriate. When does the RWQCB foresee the TMDL being incorporated into the NPDES Permit, specifically for south Orange County?

Response: If warranted, the San Diego Water Board may choose to incorporate the TMDL requirements into NPDES Stormwater WDRs at any time. All persons are allowed to petition the San Diego Water Board to open and amend existing NPDES WDRs, if a strong case can be made. However, the most likely time for inclusion of these TMDL requirements is during the five year NPDES WDR reissuance cycle. Actual inclusion into the Orange County NPDES permit will depend on when these TMDLs are adopted in relation to the Orange County 5-year NPDES WDR reissuance cycle.

Comment 324

Comment 126. We agree that rainfall events correspond to times of the year when the REC-1 beneficial use is at its minimum. However, beneficial uses apply at all times, and therefore must be protected at all times, regardless of season or hydrological conditions. Despite poor water quality, or even dangerous oceanographic conditions, REC-1 use is still occurring during wet weather events and the following 72 hours. The technical approach does assume that to protect the use, bacterial loading must be reduced during these storm events.

We agree that reduction strategies should be prioritized according to when the use is highest, namely the summer dry season. However, this does not obviate the need to eventually address wet weather loads. The compliance schedule does not preclude dischargers from addressing dry weather loads before addressing wet weather loads.

Several important issues are raised in the above response. First, as indicated above (comment 113), it is disputed that the REC-1 use is appropriate or that *REC-1 use is still occurring* in creeks and streams under storm event conditions. Second, the use of the loading based approach in the TMDL necessarily focuses bacterial reductions on these storm events even though these *events correspond to times of the year when the REC-1 beneficial use is at its minimum*. This is true because the loadings that are associated with storm events are so much greater than dry weather (when higher levels of REC-1 use occurs), that the implementation strategies will be forced to focus on these events if there is hope of meeting the TMDL requirements.

Response: The San Diego Water Board maintains that reduction strategies should be prioritized according to when the use is highest, namely the summer dry season. However, this does not obviate the need to eventually address wet weather loads. The compliance schedule does not preclude dischargers from addressing dry weather loads before addressing wet weather loads.

A high-flow REC-1 use suspension Basin Plan amendment could be developed if warranted. However, REC-1 use at beaches likely occurs even during storm events and certainly in the 72-hours after storms.

Comment 325

Comment 132. The comment was that the Shellfishing beneficial use (SHELL) only applies to coastal marine waters. Freshwater creeks do not support shellfishing habitat or species and are not assigned the SHELL beneficial use nor water quality objectives to support shellfishing activities.

In response it was indicated in section 4.4 of Appendix S that *If WQOs are met at the mouth of the watershed, then WQOs likely also are met at the beach because dilution with the wavewash has taken place. This approach is justified because (1) the beach ocean shorelines are the ultimate receiving waterbodies. All creeks included in this project discharge to the ocean or San Diego Bay which are designated with REC-1 and SHELL uses, (2) the beaches have more recreational users than creeks, and (3) the beaches are designated with the most sensitive beneficial use, shellfish harvesting, whereas creeks are not.*

Dischargers will not be held accountable for achieving SHELL WQOs in the freshwater creeks. The dischargers will be held accountable for reducing total coliform loads at the mouths of the creeks to levels that do not cause the SHELL total coliform WQO to be exceeded at the beaches.

It is agreed that the point articulated above in the second paragraph is appropriate. However, it is not clear that this perspective is accounted for in calculating loadings in the TMDL document. Clarification on this point is requested. In addition, it is further requested that the perspectives discussed in Comment 140 be considered in the response here.

Response: The SHELL TMDLs were removed from these Bacteria TMDLs, therefore, at this time, the comment is moot. We will consider the SHELL TMDL comments at the time when we revise the draft SHELL TMDLs.

Comment 326

Comment 140. *The commenter is correct that the SHELL beneficial use is designated for the shoreline, not the creeks and rivers.*

If the discharger can provide compelling evidence that the TMDL should include a dilution factor, the TMDLs can be revised to do so. However, until that evidence is provided, the assumptions that are included in the TMDL calculations will result in water quality that supports all beneficial uses designated for the creeks and beaches.

This information seems to be in conflict with the response to Board member Kraus, as identified above under comment 132 (from section 4.4 of Appendix S). The comment was that given the low dry weather volume of water discharging from the creeks and rivers (relative to the Pacific Ocean), a prioritized investigation is needed to determine the relative impact of the creeks on the SHELL use on the Shoreline (i.e. if dilution of greater than ~15:1 occurs, the effective WQOs in creeks for the REC-1 use and on the shoreline for the SHELL use would be similar for total coliform). Based on the data that were used to develop the TMDL, it seems likely that a simple paper exercise would indicate whether or not, on average a 15:1 dilution is likely to occur at areas that feasibly could support the SHELL use (i.e. not the mouths of the creeks as the creeks do not support the SHELL use, but at a point on the shoreline that could support the use). If so, the REC-1 standard at the mouth of the creeks and streams would be protective of the SHELL use at the point at which it occurs.

Response: The SHELL TMDLs were removed from these Bacteria TMDLs, therefore, at this time, the comment is moot. We will consider the SHELL TMDL comments at the time when we revise the draft SHELL TMDLs.

Comment 327

Comment 170. Several stakeholders have expressed opinion that there is a need to reevaluate TMDLs at a set date in the future to ensure that the most up-to-date, accurate information is used for model output, and ultimately, TMDL calculation. The commenter cites numerous arguments in support of this position... However, attempts to restore water quality and meeting the TMDLs as calculated must not be delayed for acquisition of new information.

As indicated in the main body of our letter, we agree that actions to institute water quality improvements should begin as soon as possible. However, development of the TMDL began in 2004, but only data collected through 2002 was utilized in the modeling. Throughout the development of the TMDL SAG members have been requesting that all available information, particularly data submitted to the Regional Board through other programs, be included in the modeling process. SAG members and others have continued to collect new data during the development and multiple revisions of this TMDL. Some of those data could be used to fill data gaps and otherwise inform the TMDL. However, the Regional Board has not taken full advantage of these data to date. The comment was not proposing that the process be stopped to collect more data, rather that currently available data be fully utilized in the TMDL calculations.

Response: Incorporating updated land use data and new flow and water quality data into the watershed models and recalculating the TMDLs is an expensive and time consuming process and one we will not undertake at this time. Since the final TMDLs will be revised in the near future, an opportunity exists to explore the benefits and cost of updating the models. San Diego Water Board staff and stakeholders should investigate the possibilities.

Comment 328

Comment 172. Although TMDLs are expressed as “loads” in Tables 9-1 through 9-12, this does not imply that compliance will necessarily be measured in this metric. Second, the manner in which WQBELs are expressed (which must be consistent with WLAs), will be determined upon revision or reissuance of the NPDES requirements for urban runoff.

The issue of compliance is of great concern in this TMDL. The Board’s justification for selecting the loading based approach over other methods that have been used successfully in bacterial TMDLs was that “A metric expressed in a term different from a load, such as exceedance days (as has been approved by the LA RWQCB and SWRCB) does not allow program managers to decipher a percentage by which loads must be reduced, nor help with selection of BMPs” (from response to comment 147). Given all of the uncertainties and technical difficulties discussed herein, we believe that this justification is not sufficient to overcome the serious shortcomings of the technical method employed.

Response: The technical basis of these TMDLs is sound, and has been peer reviewed. Whether or not to express WLAs as exceedance days or loads in the implementing orders will be decided when the orders are written.

Comment 329

The draft technical report states that the Enterococcus for the creeks is designed to protect the downstream beach. This scenario is commendable; however, it does not address the fact that Chollas Creek has no downstream beach. Usage at the mouth of Chollas Creek is restricted by the Department of Defense and entry into the area is not allowed due to national security reasons. Therefore, the City recommends that the Regional Board establish a different goal/requirement for the Chollas Creek watershed.

Response: Although not a “beach,” San Diego Bay at the mouth of Chollas Creek is designated with REC-1 beneficial uses. Before we could consider revising the beneficial use designation as an alternative to the TMDL, an investigation of the issue must first be conducted. Then if warranted, a Basin Plan amendment revising the REC-1 use and the Bacteria TMDL could be developed. Until the issue is better investigated, revising the enterococci TMDL is premature.

4.5 Implementation Plan/Compliance Assessment

Comment 330

Can you explain how the waiver system will be implemented in regards to municipal discharger compliance assessment, BMP sizing, etc.? We are particularly concerned about how the impacts of bacteria loads from waivers are going to be addressed at the bottom of the watersheds (i.e. beaches). Schools, sewer agencies and waiver recipients must be held to the same standards as the dischargers identified in the TMDL or an allowance make in the authorized exceedence levels, similar to background sources for authorized waivers. It appears that waivers would allow a zero bacteria discharge, but how can we be sure of this?

Response: The San Diego Water Board will enforce waiver conditions to ensure that waiver discharges meet wasteload allocations. The San Diego Water Board has recently adopted new waiver conditions that better enable direct regulation of waiver dischargers by requiring enrollment and monitoring. Waiver compliance is expected to be assessed by more localized and upper watershed monitoring, rather than at the bottom of the watersheds. This monitoring may be a combination of monitoring conducted under the waiver program and municipal storm water programs.

Comment 331

In regards to the response to Comment 149. First, we are happy to see a commitment to enforce the Phase II requirements. However, as the City looks forward in an attempt to try and conceptualize how this program is going to be implemented, we have concerns. The response indicates. "If, upon enforcement of the waivers, nuisance conditions or exceedences of WQOs occur despite the stated conditions, then WDRs will be issued for these discharges." The City's concern is how the enforcing agency is going to 1) know if exceedences of WQOs occur and, 2) if an exceedence does occur, how will you know who the responsible party is – especially when you indicate that you are not requiring monitoring from Phase II communities? Obviously the dischargers are concerned over being held responsible should Phase II communities not succeed in compliance.

Response: Exceedences of water quality objectives by Phase II municipalities and non-point sources will be determined by typical compliance assessment measures such as inspections, surveillance, complaint response, reporting, and monitoring. These measures are also expected to be sufficient to identify responsible dischargers if exceedences are noted. While the TMDLs do not expressly require monitoring by these dischargers, Phase II municipalities are required to conduct monitoring under Order No. 2003-0005-DWQ. Likewise, agricultural dischargers will be required to conduct monitoring under waiver conditions. These monitoring efforts are expected to provide useful information in determining whether or not water quality objectives are met. Moreover, any discharger can be required to conduct monitoring if there is a suspected water quality problem, under the San Diego Water Board's investigation authority (Water Code section 13267).

Comment 332

Your response to Comment 170 indicates that "we have no information showing that sewage, human wastes, and domesticated animal wastes have been removed from nuisance flows and Stormwater runoff in any of the watersheds." The City disagrees with this statement. For one, bacteria reductions have been documented at a number of beaches where data has indicated that the beach water quality meets de-listing criteria. Each year the City submits an annual report, including a San Juan Creek Watershed Action Plan (WAP), which highlights all the watershed-wide actions that have been implemented to address bacteria. In addition, the City has provided reports directly to TMDL staff outlining the actions we have taken to reduce human sources of bacteria in San Juan Creek in the Dana Point jurisdiction. And, the South Coast Water District also submits regular reports to the RWQCB indicating their aggressive sewer spill prevention plan, including their operations and maintenance, videoing and grease control ordinance via their regular reporting requirements. Considering this, it is requested that this comment be revised accordingly.

Response: Your comment clarifies the record concerning information on bacteria load reductions in the watersheds of concern to you. While many measures have been implemented that have achieved indicator bacteria reductions, much more needs to be done. Indicator bacteria levels in receiving waters frequently exceed standards, especially during wet weather. For example, 195 of 217 (90 percent) wet weather samples collected from Agua Hedionda Creek, Escondido Creek, Los Penasquitos Creek, San Diego River, San Dieguito River, San Luis Rey River, Santa Margarita River, and Sweetwater River in San Diego County from 1998-2006 exceeded indicator bacteria water quality objectives.⁵ Although various entities have undertaken efforts to control sources of indicator bacteria especially during dry weather, the continuing high levels of indicator bacteria warrant further action especially during wet weather.

Comment 333

This comment letter is organized showing our original and remaining requests for changes in the Draft Technical Report (Items 1 through 4) followed by the Regional Board's comments in *italics* as provided in Appendix S of the Draft Technical Report, and lastly the City's additional supporting arguments for each of the four issues.

Del Mar requests that Torrey Pines State Beach at Del Mar (Anderson Canyon) be removed from the Bacteria TMDL Project I

The most recently adopted water quality impaired list or 303(d) listing, dated October 25, 2006, should be the basis for the beach segments included in this Bacterial TMDL. The listing was last approved by the State Water Resources Control Board to reflect new data and information in accordance with the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (Listing Policy). The fact sheet for the Pacific Ocean Shoreline at Miramar Reservoir HA recommended the delisting of the segment using the weight of evidence and in compliance with the Listing Policy. It is Del

⁵ San Diego County Municipal Copermittees, 2007. 2005-2006 Urban Runoff Monitoring. Volume 1 – Final Report.

Mar's request that the Bacteria TMDL Project I Draft Technical Report be amended to show this segment has been removed and no longer requires a TMDL. This action is necessary in order to provide consistency and clear priorities, for both the RWQCB and dischargers, in the development and implementation of TMDLs.

Regional Board Response (No. 192 and 175 Draft Technical Report Appendix S).

The Regional Board Response to this comment states: "Even though recent measurements show that the Del Mar beach at Anderson Canyon meets WQOs (at least during dry weather), this and other improved sites will remain included in this project. Whether or not these beach segments meet WQOs during storm events is unclear, since the data submitted for de-listing purposes consisted strictly of dry weather samples. In a letter to the SWRCB dated January 31, 2006, the San Diego Water Board recommended that all waterbodies, regardless of quality during dry weather, remain listed if no wet weather data is available to demonstrate support of beneficial uses. Furthermore, whether or not the SHELL use is supported is also unclear, since the data used for de-listing was not evaluated using the total coliform SHELL WQO. Although dry weather bacteria load reduction plans would not be required for the watersheds draining to these beaches and any beaches meeting WQOs, BMPs implemented in these watersheds to reduce bacteria loading should be maintained, and monitoring, even if on an infrequent basis to assess the effectiveness of the BMPs, should continue. Wet weather bacteria load reduction plans are still needed, unless dischargers can demonstrate attainment of uses in wet weather. Dischargers can discuss the possibility of a reduced level of monitoring and reporting at sites such as Anderson Canyon with San Diego Water Board staff who oversee the TMDL implementation. TMDL implementation will take place primarily by incorporation of WQBELs into WDRs for urban runoff (such as Order No. 2007-0001). The process is described in section 11.5.3 in the Technical Report."

Del Mar's Response Comment No.1: Regional Board Does Not Present Any Basis for TMDL for Waterbody in Attainment of Water Quality Objectives.

In this above response the Regional Board, without giving a citation to policy or regulation, has expanded its authority to include as part of the Bacteria 1 TMDL a waterbody that has attained water quality as defined in the Listing Policy. Del Mar does not find the Regional Board's explanation is supported by the Listing Policy, Clean Water Act or California Water Code. We base our position on the following statements found in the Listing Policy:

"The Water Quality Control Policy for Developing California's CWA Section 303(d) List" (Policy) is intended to provide SWRCB and RWQCB staff with recommended procedures for evaluating information solicited in support of listing or delisting candidate water bodies for the section 303(d) list. The Policy does not develop new or revise existing water quality standards (i.e., beneficial uses, water quality objectives, or the State's Non-degradation Policy). The Policy does address scheduling of listed water bodies for eventual development and implementation of TMDLs.

Section 13191.3(a) of the California Water Code (CWC) requires the State Water Resources Control Board (SWRCB), on or before July 1, 2003, to prepare guidelines to be used by the SWRCB and the RWQCBs (Regional Water Quality Control Boards) in

listing, delisting, developing, and implementing TMDLs pursuant to section 303(d) of the federal CWA (33 United States Code [USC] section 1313(d)). In addition, the 2001 Budget Act Supplemental Report required the use of a “weight of evidence” approach in developing the Policy for listing and delisting waters and to include criteria that ensure the data and information used are accurate and verifiable.”

Del Mar believes that the State has clearly outlined the priorities for the TMDL program and that they should apply only to impaired water segments as defined in the 303(d) List which has used a weight of evidence approach to provide statewide consistency in its application.

Del Mar respectfully requests that the Regional Board provide references to its authority to impose more stringent TMDL requirements on dischargers than outlined in the State’s Listing Policy.

Response: Section 303(d)(3) of the Clean Water Act supports the San Diego Water Board’s inclusion of the Miramar Reservoir Hydrologic Area (HA) in the TMDL. This section requires that “each State shall identify all waters within its boundaries which it has not identified under paragraph (I)(A) and (I)(B) of this subsection and estimate for such waters the total maximum daily load [...]” As such, the Clean Water Act directs the San Diego Water Board to develop TMDLs for all water bodies, not just those water bodies found on the 303(d) list. This requirement is recognized in *Pronsolino v. Nastri*, (9th Cir. 2002) 291 F.3d 1123, 1128. Moreover, the San Diego Water Board’s proceeding with a TMDL for the Miramar Reservoir HA does not contravene the State Water Board’s *Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List* (Listing Policy). While the Listing Policy requires that impaired water bodies be prioritized, it contains no language stating that a Regional Water Board must follow the designated prioritization when developing TMDLs. Likewise, the Clean Water Act, section 303(d), does not require that the Regional Water Board follow a designated prioritization for TMDL development. The San Diego Water Board generally follows the priorities found in the 303(d) list when developing TMDLs, but also exercises its discretion when it is prudent to do so. The Clean Water Act, section 303(d), does not prohibit state action as long as the state is not attempting to adopt more lenient pollution control standards already in place under the Clean Water Act. See *City of Arcadia v. State Water Resources Control Board* (135 Cal.App.4th 1392, 1419) (citing *City of Arcadia v. EPA* (9th Cir. 2005) 411 F.3d 1103, 1107.)

The Miramar Reservoir HA is a location where the San Diego Water Board finds that it is appropriate to develop a TMDL for a water body that is not on the 303(d) list. The Miramar Reservoir HA was previously on the 303(d) list for indicator bacteria impairment, but was removed in 2006 based on dry weather data only. The lack of wet weather data used in the analysis makes the determination that the HA is not impaired by indicator bacteria inconclusive. For example, the County of San Diego Department of Environmental Health issues a general advisory during wet weather, advising people to avoid contact with ocean water for 72 hours following a storm event. This advisory applies to the Miramar Reservoir HA shoreline. In addition, TMDL modeling results indicate that beaches addressed by the TMDL are impaired by indicator bacteria during wet weather, including the beaches in the Miramar Reservoir HA. Moreover, data from

the Miramar Reservoir HA were only assessed for one location in the HA (the beach at Anderson Canyon) in 2006. Data collected from another location within the HA (the beach at the mouth of Los Penasquitos Lagoon) demonstrates that the HA is impaired by indicator bacteria. This information, combined with modeling results and the lack of wet weather indicator bacteria data at the beach at Anderson Canyon, demonstrates that it is appropriate for the Miramar Reservoir HA to be addressed by the TMDL.

The Technical Report has been revised at Appendix T to exhibit that the Miramar Reservoir HA is impaired by indicator bacteria.

Comment 334

Del Mar's Response Comment No. 2: Regional Board's Argument to Use SHELL WQO Unfounded

The Regional Board is arguing that the SHELL Beneficial Use should be protected in this segment that has not been listed to be impaired in the most recent 303(d) listing dated October 25, 2006. As mentioned above, Del Mar does not believe the Regional Board has supported, in policy or regulation, requiring a TMDL for a waterbody that has attained water quality.

Del Mar respectfully requests that the Regional Board provide references to its authority to impose more stringent TMDL requirements on dischargers than outlined in the State's Listing Policy.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. This finding applies to water quality objectives that support the SHELL beneficial use. Please see our response to Comment 333 for further discussion.

Comment 335

Del Mar's Response Comment No. 3: Regional Board Requires Bacterial Load Reduction Plans for De-Listed Waterbodies

The Regional Board plans to require Bacterial Load Reduction Plans for wet weather discharges for a de-listed waterbody and has not provided the basis to impose this requirement for a waterbody segment that has attained water quality objectives.

Del Mar respectfully requests that the Regional Board provide references to its authority to require a Load Reduction Plan or Implementation Plan for a segment that has attained water quality objectives based on the State's Listing Policy.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. As such, it is appropriate for the Miramar Reservoir HA to be subject to the TMDL and its

Bacteria Load Reduction Plan requirements. Please see our response to Comment 333 for further discussion.

Comment 336

Del Mar's Response Comment No. 4: Regional Board Requires Assessment of BMP Effectiveness and Monitoring Already in Place as part of the MS4 Permit.

The BMP assessment and other requirements that include “reduced level of monitoring” are not justified and should not extend beyond the existing programs currently in place to comply with the MS4 Permit (Order No. 2001-01 and 2007-0001) which is the basis for the programs being implemented by Del Mar. Attainment of water quality in this waterbody segment was accomplished by demonstrating that it was erroneously listed in 1998 using very limited water quality data and delisted only after the data collected by Del Mar from 2002-2006 was considered by the SWRCB in compliance with the Listing Policy of 2004.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. As such, it is appropriate for the Miramar Reservoir HA to be subject to the TMDL and its BMP effectiveness assessment and monitoring requirements. Please see our response to Comment 333 for further discussion.

Comment 337

Del Mar requests that Table 1-1. *Bacteria-Impaired Water Quality Limited Segments Addressed in this Analysis* be modified

Table 1-1 *Bacteria-Impaired Water Quality Limited Segments Addressed in this Analysis* should be modified and the segment for Miramar Reservoir HA removed to reflect the delisting of this area as of October 25, 2006 and to make it consistent with the Listing Policy.

Regional Board Response No. 193 and 175 (Draft Technical Report Appendix S) is the Same as Above.

Del Mar's Response Comments No. 1 through No. 4 to the Regional Board's Responses are shown above.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. As such, it will not be removed from Table 1-1 as a bacteria-impaired water quality limited segment. Please see our response to Comment 333 for further discussion.

Comment 338

Del Mar requests removal from the obligation to prepare a Bacteria Load Reduction Plan and comply with reporting requirements.

Removing the Miramar Reservoir at Anderson Canyon segment from the Bacteria TMDL Project I effectively eliminates the requirement to develop and implement the Bacteria Load Reduction Plan required per Section 1.6 of the Technical Report. Del Mar believes that the language in Section 1.6 is too vague and may require unnecessary plans and reports for a water segment that has been effectively delisted by the SWRCB and approved by EPA. Removing the segment from the TMDL effectively eliminates the City's (and other parties) obligation to comply with these requirements. The end result for this small City is to allow us to focus limited resources on high priority water impairments and future TMDLs and not on a segment that has effectively shown attainment with water quality objectives.

***Regional Board Response No. 194 (Draft Technical Report Appendix S):** TMDLs for beaches that have been de-listed in the section 303(d) process ensures that dischargers continue to implement BMPs to meet WQOs. We agree that dischargers should focus their resources on problematic areas, therefore areas meeting WQOs can be considered low priority and a reduced level of monitoring can suffice. Bacteria Load Reduction Plans for wet weather are still needed as described in the response to Comment 175.*

Furthermore, the Regional Board added text to Section 1.6 in the revised Draft Technical Report in response to the City's previous comments regarding the Load Reduction Plan requirements (page 19, 4th paragraph):

"In some cases, waterbodies included in this project are no longer on the List of Water Quality Limited Segments (footnote: Beaches in the Miramar Reservoir and Scripps hydrologic area were removed from the List of Water Quality Limited Segments in 2006 based on assessment of dry weather data). For these areas, municipal dischargers and Caltrans need not prepare bacteria load reduction plans for their discharges in these watersheds if attainment of WQOs is demonstrated in both wet and dry weather. However, any BMPs implemented in these watersheds to reduce bacteria loading should be continued and maintained. Likewise, monitoring to assess the effectiveness of these BMPs should continue. For areas that have been de-listed strictly based on dry weather samples, wet weather bacteria load reduction plans are needed."

Del Mar's Response Comment No. 5: Regional Board Requires Bacterial Load Reduction Plans for De-Listed Waterbodies

The Regional Board plans to require Bacterial Load Reduction Plans for wet weather discharges for a de-listed waterbody and has not provided the basis to impose this requirement for a waterbody segment that has attained water quality objectives. The Regional Board has not provided the basis, in policy or regulation, for this requirement. Del Mar requests that the Regional Board cite its authority to expand the requirements beyond those waterbodies on the 303(d) List and subject to a TMDL prior to adoption of the Bacteria 1 TMDL.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. As such, it is appropriate for the Miramar Reservoir HA to be subject to the TMDL and its Bacteria Load Reduction Plan requirements. Please see our response to Comment 333 for further discussion.

Comment 339

Del Mar's Response Comment No. 6: Regional Board Requires Assessment of BMP Effectiveness and Monitoring Already in Place as part of the MS4 Permit.

The BMP assessment and other requirements that include “monitoring” are not justified and should not extend beyond the existing programs in place as part of compliance with the MS4 Permit (Order No. 2001-01 and 2007-0001) which is the basis for the current programs being implemented by Del Mar. Attainment of water quality in this watershed was accomplished by demonstrating that it was erroneously listed in 1998 with very limited water quality data only after the data collected by Del Mar from 2002-2006 was considered by the SWRCB in compliance with the Listing Policy of 2004. Del Mar should only be required to continue to implement its Jurisdictional Urban Runoff Management Plan (JURMP) in compliance with NPDES Order No. 2007-0001 to demonstrate sustainable water quality for this segment. The Regional Board should provide in its response to this comment letter the basis in policy or regulation to require additional monitoring or assessment of BMPs for a waterbody that has attained water quality in accordance with the Listing Policy.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. As such, it is appropriate for the Miramar Reservoir HA to be subject to the TMDL and its BMP effectiveness assessment and monitoring requirements. Please see our response to Comment 333 for further discussion.

Comment 340

Del Mar requests changes to Table 11-3 Prioritized List of Impaired Waters for TMDL Implementation

Del Mar requests Miramar Reservoir HA (906.10) watershed be removed from Table 11-3 for the same reasons noted previously.

If the revisions requested by Del Mar are not incorporated, the end result for this and future TMDLs will be unpredictability and unjustifiable expenditure of resources. Del Mar seeks consistency throughout the region and the State so that an “even playing field” is set as originally intended by the SWRCB and the Delisting Policy. If the implementation of the Bacteria TMDL Project I continues as described in the Draft Technical Report, the Regional Board will be deviating from the SWRCB Listing Policy

and defying its purpose. Del Mar believes the revisions to the delisting shown in the 303(d) List for 2006 should be taken into consideration prior to approval of the Bacterial TMDL Project I adoption.

***Regional Board Response No. 196:** We disagree that this and future TMDLs will cause unpredictable and unjustifiable expenditures of limited resources. The goal of the implementation plan is to attain and maintain WQOs throughout all seasons and hydrologic conditions. If dischargers have met this burden, then their only expenditures would be to report that WQOs are attained, and reporting would occur at an appropriate frequency as specified in the discharger's monitoring and reporting programs.*

See Del Mar's Comments to Response No. 6 above.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. For this reason, it will not be removed from Table 11-3. Please see our response to Comment 333 for further discussion.

Comment 341

The Regional Board has provided responses in Appendix S of the Draft Technical Report to our previous comments submitted on April 17, 2007 and September 15, 2006, but **has not addressed what Del Mar believes is the most significant issue and comment to date**. We provide below additional arguments supporting our position that a waterbody that is no longer on the State's 303(d) list of Water Quality Impaired Water Bodies should not be subjected to a Total Maximum Daily Load (TMDL) program because it as "attained" status with respect to water quality objectives.

The reason this is important to Del Mar is that we believe the requirements are unfounded and unreasonable when they go beyond the State's current Listing Policy and create an economic disadvantage and burden to the community for **no perceived environmental benefit**. The Regional Board has not provided the City with the basis of its authority to require TMDL implementation for a waterbody in attainment status.

Response: As previously discussed, Clean Water Act Section 303(d)(3) requires the San Diego Water Board to develop TMDLs for all water bodies. The San Diego Water Board has evaluated indicator bacteria data from the Miramar Reservoir HA and found that the Miramar Reservoir HA does not meet indicator bacteria water quality objectives. As such, it is appropriate to develop an indicator bacteria TMDL for the Miramar Reservoir HA. Please see our response to Comment 333 for further discussion.

Comment 342

Comment 173. *The TMDLs for beaches and creeks are not the first TMDLs where the allocations are expressed as loads. The Nooksack River Watershed Bacteria TMDL, developed by the Washington Department of Ecology in 2001, and the Lynnhaven Bay TMDL Report for Shellfish Areas Listed Due to Bacteria Contamination, developed by*

the Virginia Department of Environmental Quality in 2004, both use loads as the method of expressing the allocations.

The response does not adequately address the comment. Our comment was regarding the technical basis of this TMDL. Careful review of the TMDLs cited above clearly indicates that the methodology used to derive allocations in this TMDL is substantially different than those in the TMDLs referred to in the response. While, it is true that the referred to TMDLs employed loading based approaches, the technical basis for this TMDL is without precedent. We have conducted a detailed review of available information and have not found other TMDLs that have derived allocations in the same manner as has been done in this TMDL. This lack of precedent reinforces our concerns regarding the technical underpinning of the TMDL methodology. In further support of this point of view, a newly released EPA document highlighting 17 TMDLs with stormwater sources (EPA 841-R-07-002, 2007) indicates that there are innovative methods that have been used successfully to address bacteria in stormwater impacted areas, however the method employed in this TMDL is not mentioned.

TMDL compliance will not necessarily be measured against the metric used to express WLAs. ...NPDES requirements must include conditions (WQBELs) that are consistent with the assumptions and requirements of the WLAs. WQBELs may be expressed as numeric effluent limitations or as BMP development, implementation, and revision requirements. Numeric effluent limitations require monitoring to assess load reductions while non-numeric provisions, such as BMP programs, require progress reports on BMP implementation and efficacy, and could also require monitoring of the waste stream for conformance with a numeric WLA requiring a mass load reduction. The metric for which WQBELs will be expressed and included in NPDES requirements for urban runoff, (also known as municipal “permits”) for the purpose of implementing WLAs, has not been determined at this time.

As noted above in comment 172, this issue is of great concern and should be resolved prior to adoption of the TMDL.

Response: The commenter provides no support for the position that the approach used to calculate the TMDLs’ wasteload allocations is technically inadequate. While other TMDLs may not use the same approach, that does not mean that the approach is invalid.

Although TMDLs are expressed as “loads,” this does not imply that compliance will necessarily be measured in this metric. The manner in which WQBELs are expressed (which must be consistent with WLAs), will be determined upon revision or reissuance of the NPDES requirements for urban runoff. The public process associated with reissuance of the NPDES requirements is the proper place to propose alternative metrics to measure compliance.

Comment 343

Comment 208. We are in agreement with the Heal the Bay comments that indicated the following : “The most important beneficial use that is impaired by high fecal indicator bacteria densities is recreational water contact. A TMDL based on the total number of fecal bacteria in the water, rather than the numbers of days that exceed beach water

quality standards, will not lead to beneficial use attainment and is an insurmountable compliance assurance problem.”

Response: We agree that measuring TMDL compliance with exceedance days may be a suitable metric for beaches. Therefore, we encourage the commenter to stay involved with the public process associated with the re-issuance of the municipal NPDES requirements, which is the appropriate forum for determining the compliance metric(s) for these TMDLs. However, unlike the Santa Monica Bay TMDLs, this project is inclusive of inland creeks, and therefore compliance methods must be suitable for determining attainment of standards in creeks in addition to beaches. Moreover, in terms of formulating strategies for BMP implementation, the exceedance days approach does nothing to help dischargers quantify the magnitude of existing loads or link those loads to their sources. A loading approach provides the ability to calculate percent reductions needed in each unique watershed. For example, in the San Luis Rey watershed, a 3 percent reduction is needed in fecal coliform loading, compared to a 53 percent reduction needed in the San Diego watershed. Further, the load contributions by land use are discussed in Appendix I of the technical report. This information is useful in determining which watersheds require the most effort, and what types of BMPs may be effective, and where they might be placed. An exceedance day-based analysis does not provide such useful information.

Comment 344

The approved 2006 303(d) list removed beaches from the Miramar Reservoir and Scripps Hydrologic Areas for bacteria, with the exception of the Children’s Pool; however, they are still included in this TMDL. The Water Quality Control Plan for the San Diego Region 9 does not provide the ability to list pollutants by seasonal variations. The City of San Diego requests that these beaches be removed from this TMDL and be compliant with the State Water Board’s Water Quality Control Policy for Addressing Impaired Waters, or provide an interpretation of State Water Board Resolution 2005-0050 which authorizes the above referenced policy.

Response: As discussed in our response to Comment 333, the Clean Water Act supports the San Diego Water Board inclusion in these TMDLs of beaches in the Miramar Reservoir and Scripps HAs. Please refer to the response to that comment for a complete discussion of this issue.

Comment 345

Enforcement - The City continues to request that the Regional Board provide specificity on how compliance will be evaluated in terms of the number of Notices of Violation and/or fines that dischargers would be subject to if compliance is not obtained (e.g., one fine per outfall per day, one fine per tributary, a certain dollar amount per gallon). Given the difficulty that dischargers will encounter in trying to comply with the TMDL, it is only fair to offer dischargers a basis for considering cost/benefit consequences during their implementation planning.

Response: The San Diego Water Board determines appropriateness of different enforcement measures at the time of non-compliance. Numerous factors are considered,

such as magnitude of impact to beneficial uses, duration of impact to beneficial uses, previous compliance record of the discharger, etc. Since this information is not currently known, the expected number of enforcement actions or their severity cannot be established at this time. Moreover, the San Diego Water Board expects dischargers to be in compliance with the waste discharge requirements that implement the TMDLs. As such, it does not accommodate planned non-compliance in the manner suggested in the comment. In addition, please note that any potential economic benefit derived from non-compliance is taken into account when administrative civil liability penalties are calculated.

Comment 346

With regard to the discussion of where Wasteload Allocations need to be met (i.e., above or below outfalls, and the discussion of using receiving waters to convey or assimilate waste,) please clarify the graphics on page R-67 and R-70 of the Environmental Analyses. These graphics show, respectively, sandbags and treatment wetlands in what appear to be Waters of the State.

Response: The graphics on pages R-67 and R-70 of the Environmental Analysis and Checklist are provided only as examples of BMP implementation. The graphics are not meant to dictate where in relation to Waters of the State BMPs can or cannot be implemented. While the images do not provide adequate information to determine if the BMPs are located in Waters of the State or not, both of the BMPs presented (sand bags and constructed wetlands) can certainly be implemented outside of Waters of the State.

4.6 Compliance Schedule

Comment 347

Coastkeeper supports adoption of this TMDL, followed by the Basin Plan Amendment (BPA) that will incorporate the reference approach for final wet weather. We recognize the compromise staff has made to balance stakeholder concerns, including extending the final compliance schedule for this TMDL to 20 years. Coastkeeper supports this TMDL only with the understanding that the Reference Approach BPA will provide for a more appropriate compliance schedule for final limits. That is, that the schedule for the revised limits should be consistent with the interim compliance schedule of this TMDL.

The Technical Report seems to recognize this concern, stating that the revised final limits of the TMDL, once the reference approach is applied, will be “similar” to the interim limits of this TMDL (see page 14). However, the report does not indicate how far the similarity will extend. Without limits clearly spelled out in the TMDL or Technical Report, we are concerned that hard-fought negotiations on the compliance schedule will be lost once the Reference Approach BPA is adopted. Coastkeeper supports limiting the new reference schedule to the interim schedule of this TMDL.

Response: In determining appropriate interim wet weather TMDLs, the San Diego Water Board chose to apply the 22 percent exceedance frequency determined for Leo Carillo Beach in Los Angeles County. At the time, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. Since then, four other reference beaches have been characterized by SCCWRP. Based on all the available reference beach data, all watersheds in this TMDL will receive a watershed specific exceedance frequency once the reference system basin plan amendment has been adopted. The 22 percent exceedance frequency was justified for the current interim targets because the exceedance frequencies of our Region’s urban watersheds will likely be close to the value as the one calculated for Leo Carillo Beach. If this does indeed turn out to be the case, or if the exceedance frequency is greater than 22 percent, then the resulting final wet weather TMDLs will be the same as, or less stringent than, the interim TMDL. In this case, a 10-year compliance period would be appropriate for the revised final TMDLs.

Comment 348

Although the County supports the timely adoption of the TMDL, it should be noted that the timeframe of 5-7 years for a 50% waste load reduction as presented in Table 11-4 of the TMDL technical Report is not realistic. The control of wet weather flows is a substantial undertaking. This schedule does not allow adequate time to fine-tune the modeling and use the results to site the location of BMPs, identify sources, develop plans, develop formal agreements with stakeholders, secure funding, acquire land, conduct permitting, bid out contracts, and install BMPs. As we have previously commented, we recommend a timeframe of 7-10 years for reaching the 50% waste load reduction requirement.

Response: The San Diego Water Board believes that 5-7 years to meet the 50 percent wasteload reductions of the interim wet weather targets is reasonable for the following reasons.

In order for municipal dischargers to meet the current interim wet weather targets, they must reduce their current bacteria contribution by certain percentages for all three indicators (e.g. fecal coliform, enterococci, and total coliform), depending on the watershed. For all the watersheds, these percent reductions fall within the following ranges:

Fecal Coliform - 1.6 to 53.3 percent

Enterococci - 1.9 to 51.4 percent

Total Coliform - 1.6 to 47.0 percent

In order for municipal dischargers to meet the required 50 percent wasteload reduction of the current interim wet weather targets, they must reduce their current bacteria contributions by a percentage, depending on the watershed, within the following ranges:

Fecal Coliform - 0.8 to 26.3 percent

Enterococci - 1.0 to 25.7 percent

Total Coliform - 0.8 to 23.5 percent

The amount of required reduction depends on the watershed, with some watersheds requiring less than 1 percent reduction, thereby allowing more than 99 percent of the current municipal load to continue. On the other hand the largest required reduction will be less than 27 percent, thereby allowing more than 73 percent of the current municipal load to continue.

The San Diego Water Board believes that the municipalities are capable of achieving 1 to 27 percent reductions within 5 to 7 years via a combination of aggressive non-structural BMPs, and targeted structural BMPs in known bacterial hot spots.

Comment 349

Comment 216. Numerous specific responses were provided in the comments, nevertheless, our concern remains that the current load reduction targets and compliance timeframes for MS4 discharges are unrealistic and unachievable. The load reduction targets are impacted by many of the comments described in this attachment, and our concern regarding timing is inextricably linked to those targets.

Response: Please see response to Comment 348.

Comment 350

Compliance Schedule – The June 25, 2007 draft technical report modified the Final Dry Fecal Coliform and Enterococcus compliance schedule. This change is inconsistent with the previous Regional Board staff position which was based on an acknowledgement that, while it is feasible for dischargers to comply with final Wasteload Allocations within 17 years, it is infeasible for the dischargers to comply with these final Wasteload Allocations within 10 years. Please describe the rationale for the change, anticipated impacts to dischargers, and feasibility of compliance.

Response: The San Diego Water Board believes that 10 years is the maximum required timeline to achieve dry weather TMDLs. In fact, many beaches included in this TMDL are meeting WQOs during summer dry weather as shown by monitoring data. This is due to low flow diversion structures and other BMPs implemented by coastal municipal dischargers since 2002. We also believe that a 10-year compliance schedule for dry weather TMDLs is feasible because non-structural, less expensive source reduction BMPs are available to the dischargers.

Comment 351

The compliance schedule and interim goals/milestones should be clarified.

The Draft TMDL's compliance schedule requires 50% of "all interim and final dry ENT and FC" to be met several years before 100% interim reductions are required. The Regional Board should clarify what is meant by "50%". Is this 50% of the billion MPN/year existing load or is it a 50% reduction in exceedance days? Also does "all interim" refer to both dry and wet weather interim requirements? This is extremely confusing. For comparison, the Santa Monica Bay Beaches Bacteria TMDL sets interim compliance targets as maximum allowable exceedance days. The Regional Board should clarify this language.

Response: Thank you for the comment. The required reductions have been clarified by separating the wet and dry weather requirements into two tables. The required 50 percent reduction is a wasteload reduction.

Comment 352

The compliance point for final dry weather targets should be moved forward.

The Draft TMDL requires final dry and wet weather targets to be met 20 years after TMDL approval. The timeframe appears excessive for meeting final dry weather targets. As you know dry weather targets are much easier to meet than wet weather targets, and the dry weather period is the most critical period from a public health perspective. The Santa Monica Bay, Marina del Rey and San Pedro Bay Beaches Bacteria TMDLs require final dry weather targets to be met three years after adoption for the AB411 time period and 6 years for winter dry weather. Since this deadline has past, we have seen great improvements in beach water quality in Santa Monica Bay. Many municipalities in Los Angeles County have implemented best management practices such as dry weather diversions and treatment facilities to improve beach water quality. San Diego Regional Board staff should separate the final compliance dates for dry and wet weather, so that the dry weather targets are met within at most five years. This is necessary to protect public health as soon as feasible during the high-use beach period.

Response: To clarify, the compliance period for the dry weather TMDLs is 10 years. The San Diego Water Board developed the compliance schedule through several years of collaborative efforts with our stakeholders. Even though the TMDLs were not yet adopted, our municipal dischargers showed their commitment to meeting water quality objectives during dry weather by implementing BMPs like those mentioned in the comment. Monitoring data show that many San Diego Region beaches included in this TMDL are meeting REC-1 standards during summer dry weather. The compliance

schedule, with its 10 year period to meet interim wet and final dry TMDLs, was developed to allow dischargers as much flexibility as possible to meet TMDLs. For these reasons, we are not proposing to shorten the dry weather compliance period it at this time.

4.7 Environmental Analysis

Comment 353

With regard to the impacts of diverting dry weather flows on existing wetland vegetation, please provide the basis for the statements on pages R-32 and S-185 that impacted plants would likely be non-natives.

Response: Under natural conditions, most southern California inland wetlands would generally be dry during the summer and only appear wet after storm events, after the soil becomes saturated and enough storm water runoff is available to remain on the surface. Therefore, under natural conditions, inland wetlands in southern California would only appear to be wet on the surface for short periods of time primarily during the wet season.

Species of plants native to southern California inland wetlands are adapted to long periods where the wetland surface is dry. On the other hand, inland wetlands that exist due to urban runoff would have much shorter dry periods, or no dry periods at all. This type of regime encourages the growth of plant species with higher water requirements. Non-native species of plants that require significantly more water than native species, such as *Arundo donax*, crowd out the native species as long as there is an artificial source of water sustaining their growth and reproduction.

If urban runoff, which is the primary source of dry weather flows, is significantly reduced or ceases completely, the dry periods for inland wetlands are expected to become longer and more conducive to the re-emergence of native inland wetland plant species.

Comment 354

With regard to the contention on page S-185 that the elimination of dry weather flows and enhance future restoration opportunities, it is true that the removal of non-natives can facilitate enhanced growth of natives. However, if the diversion of water results in the elimination of hydrophytic non-natives, wouldn't the same diversion also reduce the area in which the hydrophytic natives could thrive?

Response: Many of the hydrophytic non-native plant species thrive when the water table is close to the surface. Additionally, many non-native species, especially *Arundo donax*, reproduce more quickly and consume significantly more water resources than native species. Therefore, the reduction or elimination of dry weather flows would remove the source of water that sustains many of the hydrophytic non-native plant species. Removal of the non-native species would also decrease the competition for and increase the availability of water for native plant species.

With a reduction in urban runoff, the area in which hydrophytic native plant species could thrive may be reduced. However, the reduction in area would likely reflect a more natural condition.

Comment 355

The City believes that achieving zero indicator bacteria at its beaches involves much more than eliminating indicator bacteria from its storm water discharges because of regrowth in receiving water and because bacteria which is generated at the beaches by birds and “dog beaches”. Please address the reasonable foreseeability that dischargers will need to eliminate the wracklines upon which birds feed and excrete waste (along with the potential impacts to sensitive bird species and grunion) as well as the potential need for dischargers to prohibit dogs on beaches (along with the potential recreation impacts).

Response: The TMDL does not require a zero load of indicator bacteria at beaches. There is an allowable load for both wet and dry weather conditions. Bacteria generated by birds on wracklines are considered natural sources that are not included in the WLA for the MS4 dischargers. If the bacteria loads from natural sources exceed the TMDL, then the WLA for the MS4 dischargers may be zero. MS4 dischargers are not responsible for reducing the bacteria load from natural sources. Eliminating the wracklines is not a requirement for the municipalities to meet their WLAs, thus this is not a reasonably foreseeable alternative that will be implemented by the municipalities.

As for bacteria in dog feces, there is no need to prohibit dogs on beaches as long as the municipalities enforce their ordinances requiring dog owners to pick up after their dogs. Municipalities can also encourage dog owners to pick up after their dogs by providing plastic bags and trash receptacles at the beaches. Enforcement of a municipality’s ordinances and providing plastic bags and trash receptacles are reasonably foreseeable alternatives that will not have an adverse impact on recreation, and will likely increase recreational use of beaches.

4.8 Economics

Comment 356

In the responses to comments there are numerous references to conducting more studies, gathering more data and model refinement (since the RWQCB indicated they cannot commit to re-evaluating the watershed models used, even though numerous flaws have been acknowledged); however the costs of these studies, data collection and model refinement did not appear in the economic analysis. Studies can be extremely costly (for example, the SCCWRP Epidemiology study is \$2M-\$3M plus) and resource intensive and they need to be considered in the economic analysis.

Response: The economic analysis considers the costs of reasonably foreseeable methods of compliance with the proposed TMDL. Methods of compliance include the implementation of non-structural and structural controls to reduce pollutant loads to meet the TMDL and collection of data to determine compliance with the proposed TMDL. However, collection of data and conducting studies for model refinement or TMDL refinement are not part of the reasonably foreseeable methods of compliance with these TMDLs. Therefore, the economic analysis is not required to consider data collection, studies, and model refinement for this purpose.

Comment 357

Comment 281. The response to comment 281 does not address either of the salient issues in the comment. Those issues are as follows: 1) whether the cost to prevent an illness is within the range established by other public health policies, and 2) this TMDL program will not be implemented in isolation. Other TMDL programs are being developed and implemented and each will have its own implementation requirements. It was recommended that the Regional Board conduct a costing exercise to estimate what the aggregate TMDL-related investment could be, whether this is even economically feasible, and whether there are possible cost saving approaches.

It is difficult to understand how the cited study (Given et al 2006) applies to the current TMDL. A more relevant analysis would estimate the cost of an illness avoided by implementation of BMPs to achieve water quality standards. The cited study presents costs of all illnesses in the specific area of Southern California due to recreational activities based on the EPA (1986) and Kay et al. (2004) relations between enterococci densities and health risk. It is important to keep in mind that EPA has set an acceptable level of risk at ~1 illness per 100 recreation events. So even if all waters investigated in that study were to be in compliance with the EPA standards, there would be substantial costs associated with GI illness in Southern California, given the large number of recreation events that occur annually. It should also be noted that there is substantial and unresolved scientific controversy regarding the use of the Kay et al relation as employed by Given et al (2006) (See commentary by Wymer et al. in Water Research 2006).

Response: The commenter's recommendation that the San Diego Water Board conduct a costing exercise to estimate what the aggregate TMDL-related investment could be,

whether this is economically feasible, and whether there are cost saving approaches is beyond the scope of the economic factors the San Diego Water Board must consider in its environmental analysis. The study cited (Given et al 2006) in the response to Comment 281 was simply an example that shows there are economic benefits for the dischargers to comply with the TMDL. The economic impact due to illnesses contracted from swimming at contaminated coastal waters can offset the costs of complying with the TMDL. However, compliance with the TMDL is a requirement, and while public health is a consideration, it is not an overriding factor that allows the dischargers to discharge in exceedance of the wasteload allocations. A TMDL is not a public health policy, it is for the restoration and/or protection of water quality.

We do recognize that this TMDL program will not be implemented in isolation. We have revised the implementation plan to allow the dischargers to submit a Comprehensive Load Reduction Plan (CLRP) for all constituents of concern in lieu of the Bacteria Load Reduction Plan. The CLRP may provide a basis for an appropriately tailored comprehensive compliance schedule (CCS), which may not extend beyond 20 years. The CCS will allow the dischargers to budget implementation of measures to comply with the TMDLs for all constituents of concern over a longer period of time, thereby reducing the annual costs required. In the CLRP and CCS, the dischargers will be able to identify the most cost effective approach and cost saving opportunities to implement their programs to comply with the TMDLs.

Comment 358

Reasonably Foreseeable Means of Compliance The City continues to request that the Regional Board explicitly acknowledge that treatment and/or diversion (e.g., infiltration) of storm water will be required in order to produce storm water discharges with zero indicator bacteria as required by the final Wasteload Allocations. Unlike Chollas Creek Dissolved Metals TMDL which acknowledged this reasonably foreseeable means of compliance, the staff response for this TMDL (page S-2001) states that in some cases structural BMPs may not be necessary. Does this response apply only to discharges which have no anthropogenic-related bacteria sources in the drainage area? Analysis of water quality samples collected in the city reveal that 79% of the samples contain detectable levels of indicator bacteria (DNA analysis is required to determine whether the source of this bacteria is anthropogenic). Detection limits vary, but it is reasonable to assume that some of the remaining 21% of samples contain indicator bacteria in excess of the zero Wasteload Allocation.

Response: The response referred to by the comment was in reference to the discussion about potential non-structural or structural controls that may be implemented in residential areas. We do not know which non-structural and/or structural controls will be implemented by the dischargers in residential areas to comply with the TMDLs. In some cases, non-structural controls (e.g., enforcement of ordinances, education) may be all that is required to meet load and wasteload allocations. In other cases, structural controls may also be required. The dischargers will have to determine what non-structural and/or structural controls will need to be implemented on a cases-by-case basis, appropriate to the environmental setting and potential sources of bacteria. Treatment and/or diversion

of storm water will be necessary to meet a zero wasteload allocation for wet weather. Because we intend to revise the final wet weather TMDLs to incorporate a reference system approach, the Implementation Plan does not require the dischargers to conduct wet weather planning, or reduce wet weather loads until after the San Diego Water Board has considered adopting the revised TMDLs.

4.9 Comprehensive Load Reduction Plans

Comment 359

We appreciate the inclusion in the June 2007 Draft TMDL Report of provisions allowing watershed co-permittees to propose Comprehensive Load Reduction Plans with tailored compliance timeframes so that other interrelated watershed concerns such as hydromodification and nutrients can be addressed cost-effectively in lieu of just bacteria load reduction. While it seems likely that all impaired waters could benefit from a comprehensive approach, the South Orange County Co-Permittees consider the two impaired creeks (Aliso and San Juan) as best justified and the highest priority to be addressed in the comprehensive manner, due to multiple impairments and the existence of already-substantial bodies of watershed data, planning and BMP efforts. The County of Orange, with the full support of the Co-Permittees including the City of Laguna Niguel, has taken the lead since the release of the June 2007 Draft TMDL to develop a framework document, based on the Chollas Creek framework document previously developed by the City of San Diego, to support a comprehensive load reduction program for Aliso and San Juan Creeks. This document, called the *TMDL Strategic Assessment and Watershed Implementation Framework* (a.k.a. ASJIF, for *Aliso/San Juan Implementation Framework*) will be submitted to the RWQCB by the County of Orange by August 1, 2007. The ASJIF will establish the foundation for the development of Comprehensive Load Reduction Plans with 20-year tailored compliance schedules for Aliso and San Juan Creeks, in lieu of the respective Bacteria Load Reduction Plans. ***The Co-Permittees request that these two creeks be specifically authorized for comprehensive planning and 20-year compliance schedules, along with Chollas Creek, explicitly in the Bacteria TMDL Report prior to the scheduled RWQCB action in September 2007.*** Please note that this limited request is driven primarily by time constraints and is not intended to imply that future similar requests will not be made for the other impaired waterbodies in South Orange County, as provided for in the Revised Draft TMDL.

Response: The San Diego Water Board appreciates the timely efforts put forth in the *TMDL Strategic Assessment and Watershed Implementation Framework: Aliso Creek and San Juan Creek Watersheds*, (Orange County ASJIF) which was submitted to our office on August 2, 2007.

In response to a comment from Coastkeeper, the San Diego Water Board developed conceptual performance standards for CLRPs, and these are included in the revised Technical Report. Among the performance standards is a requirement that municipalities achieve water quality objectives in receiving waters for other impairing pollutants that are to be included along with bacteria in the CLRPs, within the proposed timeframe for the CLRPs, not to exceed 20 years. That CLRPs be designed to meet water quality objectives in receiving waters was always our intent. However, this was not explicitly made clear in the draft Technical Report. In this context, “achieving the water quality objectives in receiving waters for other impairing pollutants” means that the municipal dischargers and Caltrans meet the Receiving Water Limitations requirements of their respective NPDES

Storm Water WDRs. These Receiving Water Limitations include an iterative process of increasingly stringent BMPs that will result in achieving water quality objectives. The respective NPDES Storm Water WDRs also contain monitoring requirements which can be adapted to monitor, document, and assess BMP implementation. All CLRPs must be designed to achieve water quality objectives in receiving waters for other impairing pollutants, by meeting NPDES Receiving Water Limitations as verified through NPDES monitoring requirements, within the CLRP timeframe.

While the Orange County ASJIF contains many of the conceptual performance standards discussed in the Technical Report, and deserves to be commended, it falls short of committing to achieving water quality objectives in receiving waters for other impairing pollutants within the proposed timeframe of 20 years. Rather, it states that the ASJIF “will move the improvement schedule for the parameters dramatically forward.” Because of this shortcoming, the San Diego Water Board cannot authorize a 20 year compliance schedule for the San Juan Creek and Aliso Creek Watersheds.

Comment 360

The City is pleased to see that the compliance schedule has been revised with a phased-approach. In addition, the option of a comprehensive load reduction plan framework makes a lot of sense. South Orange County Cities have worked expediently and cooperatively together to prepare a comprehensive watershed specific load reduction framework, "TMDL Strategic Assessment & Watershed Implementation Framework for the San Juan Creek and Aliso Creek Watersheds," which has been/will be submitted to the RWQCB by the County of Orange on behalf of the municipalities. The City of Dana Point has been an active participant in the development of this framework and fully supports this more comprehensive effort. The City highly encourages RWQCB staff to consider including details (revised compliance schedule, etc.) of this element in the TMDL prior to adoption (similar to Chollas Creek).

Response: Please see response to Comment 359.

Comment 361

The Cities of Laguna Beach, Laguna Woods, Mission Viejo, and San Juan Capistrano support the development and implementation of the *TMDL Strategic Assessment and Watershed Implementation Framework* for the Aliso Creek and San Juan Creek watersheds, prepared and submitted by the County of Orange. This document establishes the foundation for the development of a Comprehensive Load Reduction Plan, which will be prepared upon adoption of the Indicator Bacteria TMDL for the Project I Beaches and Creeks in the San Diego Region.

The proposed approach will address all of the 303(d) listed pollutants in the Aliso Creek and San Juan Creek watersheds as well as other local watershed concerns such as hydromodification and flooding. A 20-year implementation period is proposed to allow for a comprehensive and adaptive plan. A comprehensive watershed approach rather than a bacteria-focused approach will provide many benefits, including:

- Best use of resources through multi-objective BMPs. Comprehensive planning will necessitate that BMPs be selected that can address a range of impairments. This will result in cost savings to the public by limiting the number of BMPs that will be required.
- Best use of resources through adaptive management. The phased implementation of BMPs will allow for adaptive management through the implementation period. This will result in cost savings to the public as the plan is continually refined to incorporate data from earlier phases.
- Accelerated attention to additional 303(d) listed impairments. While the bacteria TMDL will likely be approved in 2008, additional 303(d) impairments are not scheduled for TMDL completion until 2019. Pursuing a comprehensive plan at this time will result in improving water quality related to those impairments earlier.
- Development of critical monitoring data. In order to address impairments outside of bacteria, the Permittees are committed to a robust data acquisition strategy that will develop monitoring data related to a wide range of impairments. This data will be available to the Permittees as well as the Regional Board.

Response: Please see response to Comment 359.

Comment 362

One revision in latest version of the Technical Report gives dischargers addressing other pollutant constituents concurrently with the bacteria load reduction the option to submit a Comprehensive Load Reduction Plan in lieu of the Bacteria Load Reduction Plan (see page 16). In the CLRP, a discharger may propose a comprehensive compliance schedule, different from the milestones and compliance points set forth in the TMDL.

Coastkeeper agrees with the rationale of encouraging cities to proactively address pollutants, especially in waters currently listed as impaired, but not yet covered by a TMDL restoration plan. However, without mandatory Board approval and adequate public participation, there is insufficient oversight of discharger accountability in the CLRP process. Adequate public participation includes notifying stakeholder groups of the CLRP submission, an opportunity for public comment, public hearing (and notice of the hearing), and requisite review by the Regional Board.

Without input from interested stakeholders, compliance schedules and pollution reduction practices could potentially be implemented without a uniform standard, permitting some dischargers to implement their CLRPs with less stringent requirements and compliance schedules than other dischargers. This concern may be clarified with more information about the performance standards to be used.

a. Conceptual Performance Standards Must be Developed and Clarified

At the July 9th SAG meeting, staff alluded to 'performance standards' that would be used to determine whether the actions and compliance schedules proposed by dischargers are adequate for the Comprehensive Load Reduction Plans. After talking with staff, it seems these standards have not been developed and are still under staff consideration. No performance standard or template has been shared with the SAG or posted on the website. The format of the standards will be critical to developing a transparent,

objective, and consistent system. We are particularly interested in ensuring that the CLRPs do not result in inconsistent compliance schedules.

The concept of addressing multiple pollutants was raised in the Chollas Creek Metals TMDL (Technical Report, May 30, 2007, Appendix I, Section 8.4). However, in that case, a significant study (Weston Solutions, 2006. Chollas Creek TMDL Source Loading, Best Management Practices, and Monitoring Strategy Assessment, September, 2006) was the basis for a tiered system. Specifically, the tiering was outlined in several public meetings, and stakeholders were able to comment on the length of the compliance schedule, and the particular tiered objectives. Any performance standard allowed for the Bacteria 1 TMDL should use defined targets that ensure compliance standards and schedules are respected.

Response: Conceptual performance standards for Bacteria Load Reduction Plans (BLRPs) and CLRPs were developed and are included in the draft technical report in section 11. These performance standards should result in consistent CLRPs and consistent information upon which to base tailored compliance schedules. When compliance schedules are incorporated into stormwater WDRs, the public will have ample opportunity to review and comment on the compliance schedules.

Comment 363

b. Review by Regional Board Review Must be Mandatory

The technical report states CLRPs are “subject” to review by the San Diego Water Board, but does not appear to make this review mandatory (see page 16). Without moving the CLRPs through the Board process, stakeholders will have no opportunity to comment on specific CLRPs, nor will dischargers or other interested parties have access to notice and feedback when the CLRPs are submitted.

If, as we suspect, Board approval is not mandatory, we find this to be an inappropriate delegation of authority by the Board to its executive officer. Section 13223(a) of the California Water Code provides that a regional board may delegate substantial powers to its executive officer, except for “the issuance, modification, or revocation of any water quality control plan, ...” (Cal. Water Code § 13223(a) (2007)). The TMDL amends the Basin Plan, the San Diego water quality control plan. A water quality control plan must contain “a program of implementation needed for achieving water quality objectives.” (Cal. Water Code §13050(j) (2007)).

Generally, load reduction plans submitted during the implementation phase of other TMDLs focus on how compliance with the TMDL will be attained. However, here the CLRP could potentially modify this TMDL by changing its substantive provisions, namely the compliance schedule and quantity of other pollutants addressed. Thus, the CLRP is a component of the water quality control plan, rather than simply the implementation method, and so requires a public hearing to be consistent with §13244 of the California Water Code.

Response: CLRPs will be submitted in compliance with an implementing order of the San Diego Water Board, and will not be added to the Basin Plan. As such, section 13244 of the Water Code does not apply, because the Basin Plan is not being amended.

Furthermore, CLRPs cannot change the bacteria TMDLs or load and wasteload allocations. Since the Implementation Plan allows tailored compliance schedules when justified in a CLRP, the compliance schedule provisions of the TMDL are not substantively changed when a longer compliance schedule is authorized pursuant to a CLRP.

A public review and comment process will occur when CLRPs are incorporated into NPDES stormwater WDRs during renewal. Any TMDL implementation provisions and any compliance schedule proposed in a CLRP, and proposed by the San Diego Water Board for incorporation into NPDES stormwater WDRs, will be subject to the public review process for renewing WDRs.

Comment 364

The Technical Report purports to limit compliance schedules in a CLRP in that they may not extend bacteria compliance milestones beyond the interim milestones set forth for Chollas Creek (See page 16). The term ‘interim milestones’ could refer to the 10 year, 80% reductions or the 20 year, 100% reductions in the Chollas Creek Technical Report (Table 11.2) and should be clarified. In either case, subsequent to Board action on the TMDL, the compliance schedule for bacteria could change, potentially tripling the compliance schedule approved by the Board based on the CLRPs.

Response: Thank you for the comment. The technical report has been clarified. The previous draft incorrectly referred to ‘interim milestones’ and was actually intended to establish the same 20-year maximum compliance schedule for CLRPs as per the Chollas Creek Metals TMDL.

4.10 Independent Advisory Panel

Comment 365

With respect to this TMDL, RDMD's goal is active and responsible stewardship of the waters within our jurisdiction. Within this context we have interest in ensuring, to the extent feasible that public resources allocated towards water quality improvements will enhance protection of the beneficial uses (that is, actual reduction of risk to levels that are acceptable), and thus, public health protection. At the same time, we understand that the Regional Board would like to move the TMDL forward and begin to see implementation of water quality improvements in the most expeditious manner possible. To resolve these potentially competing goals, we offer the suggestion of convening an Independent Advisory Panel (IAP) comprised of nationally recognized experts to assist the Regional Board in resolving the technical issues that have led to the impasse described above. We suggest this approach because the existing peer review process has not adequately addressed these issues. We envision contracting an independent third party agency to assemble the panel, manage the review process, and provide documentation of the panel's proceedings, findings, and recommendations. RDMD would be willing to participate in setting up and supporting the IAP process. Further, we would expect Regional Board staff to actively participate in this IAP process by submitting suggestions for charge questions and attending IAP meetings. Upon completion, the proceedings from the IAP would be provided to the Regional Board. It is our hope that the findings and recommendations from the IAP would be key to informing the next steps and shaping the direction of the final TMDL. We anticipate the findings from the panel could be available in a time period of 3-4 months from the point of initiation.

Logistically, the adoption of the TMDL could be delayed until the IAP process is concluded, or a specific clause for a re-opener could be included in the TMDL to address the findings of the IAP. Given that development of the TMDL has taken several years to date, and that results from the IAP could be available in a relatively short time period, it would be preferable to commence the IAP process as quickly as possible and postpone adoption of the TMDL until the process concludes. This approach has the additional appeal of allowing sufficient time so that the Basin Plan amendment addressing the reference system approach and natural sources could be adopted at the same time as the TMDL, thus resulting in a comprehensive and implementable TMDL process, as many stakeholders have recommended and requested. If the Regional Board is willing to adopt this approach, RDMD will work with Orange County stakeholders to begin to move forward with TMDL implementation in a prioritized manner in parallel to the IAP process. The initial focus would be on elements that address dry weather exceedances of bacterial water quality standards at beaches, as the highest priority, as these exceedances are of the greatest public health concern.

Response: Periodic reviews of TMDLs and consideration of new information are key to making the TMDL process adaptive. As part of the Implementation of these TMDLs, and the development of the revised final wet weather TMDLs, the stakeholders are encouraged to form an expert panel to provide input and information on refining and

improving the TMDLs to the San Diego Water Board. TMDL program staff will interact with the panel to the extent that is feasible and practical. We have not included a “fixed” TMDL review schedule in the Implementation Plan because we cannot predict when information justifying TMDL revisions will be collected and available. However, when data and information are collected and available, and they indicate the TMDLs are either too conservative or too liberal, we will make revising the TMDLs a program priority.

Comment 366

Additionally, because numerous important issues (methods for calculating loadings, using the 90th percentile standards as not-to-exceed values, feasibility of load reduction targets, potential implementation costs, etc.) have yet to be resolved, and will likely not be resolved prior to initial TMDL adoption and implementation, we believe that ongoing discussion and review by an independent expert panel should be part of the TMDL implementation process. The County of San Diego supports the concurrent implementation of the TMDL and the convening of an expert panel on bacteria to aid in the refinement of the TMDL technical criteria, improvements to data evaluation and modeling, and the development of feasible and appropriate Bacteria Load Reduction Plans.

We request that the Regional Board commit, as part of the ongoing TMDL implementation process, to periodic reviews and discussion of input received through the independent expert panel or other sources, and that needed modifications be made to the TMDL as identified through that process. While we understand that your Board has the discretion to consider modifications to the TMDL in response to staff recommendations at any time, we feel it is crucial that a fixed review schedule be incorporated as part of the implementation process. As the science of bacteria evolves and additional monitoring data are collected, continued open communication and improved refinement of the modeling will further ensure that the public funds for structural or other improvements to reduce bacteria in streams and beaches are necessary and appropriate.

Response: Please see response to Comment 365.

Comment 367

The City of Laguna Niguel endorses the comment letter submitted on July 25, 2007 by the County of Orange regarding its ongoing concerns with the Total Maximum Daily Loads for Indicator Bacteria Project I – Beaches and Creeks in the San Diego Region Draft Technical Report dated June 25, 2007. While we appreciate the RWQCB staff’s efforts in this latest Draft to incorporate adaptability into the process, we share the County’s concerns that the TMDL’s load reduction emphasis on wet-weather days when recreational use is minimal is not cost-beneficial with respect to public health risk; that WQOs and load reductions are inappropriately applied statistically and geographically; and that the issue of a useful compliance metric – brought up by the SAG on numerous occasions – has once again been pushed to a later date, leaving the municipalities, the public, and the RWQCB’s NPDES permit-implementation staff all dangling without assurance of what’s going to be required. In its current letter, the County proposes that an Independent Advisory Panel be convened to address these issues, preferably in

advance of adoption of the TMDL by the RWQCB, so that the IAP's findings would be timely to be reflected also in the text of the proposed Reference System/Natural Sources Exclusion Basin Plan Amendment. We support this approach.

Response: Neither the federal Clean Water Act nor the state Porter-Cologne Water Quality Control Act allow us to take into account cost-benefit considerations when we implement water quality standards. Although fewer people recreate in the ocean and inland waters during winter-time storm events compared to summer months, we must ensure that water quality supports REC-1 uses year round. We disagree that the load reductions are inappropriately applied geographically and statistically and have addressed comments on this topic in our two Response to Comments Appendices. By not requiring a particular metric for compliance, we have allowed time for dialogue among the stakeholders and San Diego Water Board staff to develop a workable compliance approach to incorporate into the TMDL implementing orders. We believe this approach allows us to move forward now to adopt the TMDLs while still providing time to develop an appropriate compliance metric, even though it leaves unanswered questions at this time.

4.11 Miscellaneous

Comment 368

The apparent aggressive pursuit, with pressures from EPA and State, of finalizing the TMDL with acknowledgement of the lack of data, data that will be available in the near future and refusal to revise the model based on best available data, continues to cause tremendous concern. Repeated written responses and comments from the RWQCB staff that the TMDL cannot be delayed any longer because dischargers need to start doing something to address bacteria are not justified, particularly in South Orange County, in our opinion.

It should be noted that South Orange County dischargers have been aggressively focusing their efforts under the current Stormwater permit and their watershed actions plans for at least the past five years. The fact that beaches in every south Orange County coastal City (San Clemente, Dana Point and Laguna Beach) meet criteria for de-listing demonstrate significant achievement from the efforts that the Cities' have made to address indicator bacteria issues. Dischargers are doing plenty! The City of Dana Point aggressively pursued funding and committed \$500,000 itself to initiated the Epidemiology and Microbial Source Tracking Study at Doheny State Beach, currently being conducted by the Southern California Coastal Water Research Project (SCCWRP) and University of California Berkeley - knowing that this effort is greatly needed to help effectively address this TMDL effort and beyond.

Response: We appreciate the proactive and effective actions of the South Orange County dischargers to reduce dry weather loading. However, we are not aware of any actions taken to address wet weather loads. The adoption and implementation of the TMDLs should not wait until the studies being performed on behalf of the dischargers are completed. When the studies are completed, the results of the studies and the data that are collected by the dischargers may help the dischargers identify anthropogenic sources that can be further reduced to meet the wasteload allocations, as well as provide a basis for modifying the parameters in the models used to calculate the TMDLs.

Comment 369

Although, the City has continued concerns regarding the method of implementation and method of compliance evaluation of the TMDL program, we have been told by staff that the details will be developed in the load reduction plans. We feel strongly that the natural background exclusion Basin Plan Amendment and the Epidemiology study should provide valuable information that will help develop these plans. However, the RWQCB, along with the SAG, have only briefly mentioned a few options of compliance assessment that may be considered (verbally indicating that effluent limits are not necessarily required) which has only provided a modicum of comfort. As an agency who serves the public, we must ensure that programs are developed in our constituents' best interest in a financially responsible way. We hope to continue a cooperative relationship with the RWQCB so that these items are developed and the final outcome will be reasonable, flexible and effective; however we need to note that we remain concerned

that because these items are not being addressed at this time, with the potential change of staff, etc., the intent could be lost, whereby subjecting dischargers to undue methods of implementation and compliance assessment.

Response: Upon adoption of this TMDL, a Transfer Plan will be developed to lay out the expected actions that will be taken by the San Diego Water Board to implement the TMDLs. The load reduction plans and methods of compliance assessment will require a cooperative effort between the dischargers and the San Diego Water Board.

The dischargers have the primary responsibility of developing the load reduction plans. Therefore, the dischargers are given an opportunity to propose a monitoring strategy that will provide the flexibility they are looking for as long as they provide the data and information to determine compliance with the TMDL.

Comment 370

Another great concern that has just been brought to the table in the NPDES reissuance process, is the newly defined Facility that Extracts, Treats and Discharges (FETD) waters of the US or State. This language and the proposed monitoring requirements, as well as long-term intention of requiring these facilities to obtain individual NPDES discharge permits (meeting all applicable water quality standards), was recently included in the revised draft tentative order for the south Orange County MS4 Permit. It is an entirely new addition, as it was not included in the first iteration of the draft Permit. This proposed requirement is quite alarming, as it requires additional monitoring, which may or may not be based on the treatment purpose. At this time it appears that in order to meet the goals of the TMDL, treatment facilities will be necessary. This extra layer of regulatory requirements will put an extra burden on dischargers trying to do the right thing and may exclude potential solutions to the problems at hand.

The City sincerely understands the need to ensure that a treatment facility will not create additional concerns (such as toxic byproducts), and we also understand that it is prudent to address more than one concern at a time when it makes sense (hence our support and development of a comprehensive load reduction plant); however the language included requires monitoring that may not be applicable to the pollutants of concern and does not address the concern of toxic products of treatment.

Why does the RWQCB feel the necessity to pursue individual NPDES permits for FETDs? It appears that this will block any "end of pipe" solutions that address current 303(d) list bacteria reduction efforts, when it is these end of pipe solutions that may be the only way to get us to our goal. It seems logical to require monitoring for potential toxic byproducts for a specific time to see if they are in fact a concern, but the reasons for requiring monitoring for other parameters is not understood. It seems logical to look at specific projects on a case by case basis, under the existing NPDES Permit and TMDL Bacteria Load Reduction Plans to determine what monitoring makes sense for that particular project. Please address.

Response: As stated in revised Tentative Order No. R9-2007-0002, facilities that extract, treat, and discharge (FETDs) to waters of the U.S. may discharge effluent that does not support all designated beneficial uses without proper treatment processes. The use of the

MS4 NPDES requirements to regulate discharges from FETDs is an interim approach until individual or general NPDES requirements are developed. Until then, discharges from FETDs are expected to meet all applicable water quality standards (i.e., antidegradation policy, water quality objectives, and beneficial uses) to comply with the NPDES requirements for Southern Orange County. This does not differ from what is generally required of any discharge to a surface water body from a point source. If FETDs can meet all water quality standards, there may be no need to issue individual NPDES permits.

However, development of individual NPDES requirements for an individual FETD, or general NPDES requirements for region wide FETDs would allow for a more focused monitoring and reporting program than what is required to comply with the Southern Orange County NPDES requirements. In any case, the discharges from FETDs are considered point source discharges to surface water bodies and must comply with the water quality standards in the Basin Plan.

Comment 371

Design Storm – The City continues to request the Regional Board provide a design storm or an allowable exceedance frequency. Regional Board staff has declined to do so, indicating that providing such a number is not required by CEQA. This response misses the mark in that the issue here is not necessarily the CEQA compliance but needed guidance on how large to build treatment and diversion facilities. For example, on page R-76 of the Environmental Analysis, treatment systems in Dana Point and Encinitas are described, including their costs. Based on the capacities noted (1,000 gallons per minute and 150 gallons per minute) these facilities (assuming they operate correctly) would themselves result in compliance with the TMDL in terms of size and effectiveness on the downstream beach. If they wouldn't, please describe a facility of a size and capacity comparable to that which would be needed to comply with the proposed TMDL. Without guidance on this issue, it is impossible for dischargers to know with certainty how to comply with the TMDL. It is not reasonable to expect dischargers to be able to design or build treatment or infiltration facilities with enough capacity to comply with a final zero Wasteload Allocation during a storm of infinite size.

Page S-162 of the Regional Board's responses to comments states that "[d]esignating a design storm criteria for structural BMPs in the NPDES requirements to implement these TMDLs is reasonable". Page S-120 indicates that the storm water permit may not be amended to incorporate the TMDL until it is renewed. The last storm water permit, Order 2001-01, was effective for almost 6 years before it was renewed. Guidance on this issue is needed much sooner in order to comply with the 10-year interim milestones in the TMDL.

Response: We understand that a design storm criterion is important for sizing and designing structural BMPs. However, specifying a design storm is not within the scope of this TMDL or environmental analysis. If the dischargers and/or San Diego Water Board develop an appropriate design storm, the NPDES storm water requirements can be amended to include it. Amending the NPDES storm water requirements is a different process and not within the scope of this project.

Comment 372

Best Management Practices (BMPs) Locations - The City continues to request that the Regional Board acknowledge its own requirement that Wasteload Allocations must be achieved prior to discharge of runoff from storm drain outfalls. The issue here is not whether the Regional Board's 401 certification program can permit BMPs in receiving water but whether BMPs built in receiving waters can result in compliance with the TMDL. Regional Board staff deleted the term "prior to discharge[d]" from pages 13 and 122 of the Technical Report (note the comparable language was not deleted from page S-168 under the "Tributary Rule" discussion); however, this change does not appear to be of any effect given the July 23, 2007 correspondence from John Robertus to Chris Zirkle which reiterates the prohibition on using the loading capacity of receiving waters to convey or assimilate waste. Coupled with Regional Board staff's admission that, "generally speaking, where an outfall exists, receiving water extend upstream to the outfall location" (page S-169), it is apparent that the treatment and infiltration facilities need to be built above storm drain outfalls. Given the propensity for indicator bacteria to re-grow even in treated storm water effluent, storm water will either have to be infiltrated (in locations where slope stability is not an issue) or treated immediately above outfalls on land that is privately owned or currently developed.

Response: At this time we have not determined where TMDL compliance will be measured because these details are not necessary at this stage, and are more appropriately discussed in a stakeholder process prior to submission of the Pollutant Load Reduction Plans. The City of San Diego should propose both compliance methods and assessment locations in their Pollutant Load Reduction Plans, which will be unique to each watershed. The compliance methods and assessment locations will help the dischargers determine where and what types of BMPs should be implemented. We encourage the City to continue its discussion with the San Diego Water Board Storm Water Program staff on site-specific BMP proposals for compliance with TMDLs.

Comment 373

Pages S-180 and S-184 of the Regional Board's Responses to Comments critique the City's 2006 "Weston Report" by estimating the acreage required for treatment facilities based on the assumption that three-foot deep detention basins would be required upstream of the treatment works. The Weston Report uses as the basis for this three-foot depth the admittedly arbitrary criteria based on the need to obtain a dam permit to build deeper detention basins which would reduce the acreage required. However, it is the Regional Board's obligation under CEQA to disclose the reasonably foreseeable alternative means of compliance and the environmental impacts thereof, not the City's.

Response: We have provided a range of reasonably foreseeable methods of compliance in our analysis. The range of compliance methods is not a complete list of possible methods by any means, but is a range of methods that is reasonable and foreseeable. Our analysis includes the reasonably foreseeable environmental impacts, and identifies the potential mitigation measures that may be implemented. Our environmental analysis fulfills our obligations under CEQA.

Comment 374

If the Regional Board finds the Weston Report to accurately represent a reasonably foreseeable means of compliance but for the three-foot detention basin depth (or with regard to the location/sizing of treatment facilities), the Regional Board should discuss an amended scenario and the environmental impacts thereof.

Response: We agree with the Weston Report's tiered and iterative implementation strategy to comply with the TMDL, but we do not endorse any specific methods or scenarios. In our analysis, we have provided a range of reasonably foreseeable methods of compliance. Our analysis includes the reasonably foreseeable environmental impacts, and identifies the potential mitigation measures that may be implemented. However, the strategy for implementation and the selection of compliance methods will be the responsibility of the dischargers, not the San Diego Water Board.

Comment 375

Dry weather targets and waste load allocations should be clarified.

The Draft TMDL provides interim and final dry weather targets based on 30-day geometric mean water quality objectives. However, there are **seven** Ocean Plan water quality standards for indicator bacteria. Specifically, there are rolling 30-day geometric mean limits for total coliform, fecal coliform and enterococcus and single sample limits for total coliform, fecal coliform, enterococcus and a fecal-to-total coliform ratio. Thus, the final dry weather targets in the Draft TMDL should include all seven bacteria indicators. Also AB411 requires immediate public notification if a single sample standard is exceeded, so the current geometric mean-based targets conflict with this requirement. Clearly, a beach has impaired waters when public health warnings are issued and signs are posted.

In addition, the Draft TMDL does not clearly state that zero exceedances of the numeric targets are allowed in the AB411 time period at the final compliance milestone. In order to meet water quality standards and fully protect public health, no exceedances should occur at any shoreline monitoring location during summer dry weather (April 1 to October 31) unless there is a rain event. A final waste load allocation of zero exceedances is further supported by the fact that the California Department of Health Services has established minimum protective bacteriological standards – the same as the Ocean Plan standards – which, when exceeded during the period April 1 to October 31, result in posting a beach with a health hazard warning (California Code of Regulations, title 17, section 7958). After partaking in conversations with your staff, a zero exceedance waste load allocation appears to be the intention for dry weather. However, this should be clearly stated in both the Basin Plan Amendment and the accompanying Technical Document.

Response: The Technical Report has been revised to clarify that all of the Ocean Plan water quality objectives for REC-1 are TMDL numeric targets. The dry weather TMDLs are calculated based on the 30-day geometric mean, but the single sample maximums and the total-to-fecal coliform ratio are still applicable. The dry weather TMDLs represent an average maximum load that a water body can assimilate without exceeding the water

quality objectives over a period of time rather than at an instantaneous moment in time. There is the possibility that a single sample may exceed the single sample maximum water quality objective and still be able to meet the 30-day geometric mean water quality objective. However, any exceedance of the single sample maximums at beaches monitored pursuant to the Health and Safety Code (AB411) during dry weather would still be required to post signs to notify the public. Therefore, there is no conflict between the dry weather TMDLs and the Health and Safety Code.

Each discharger is assigned a wasteload allocation to comply with the TMDL. The compliance schedule provides the wasteload reduction required to meet the wasteload allocation. By the end of the compliance schedule, a 100 percent wasteload reduction is required to meet the wasteload allocation. If the dischargers do not reduce their wasteloads and exceed their assigned wasteload allocations after the end of the TMDL compliance schedule, they are not complying with the TMDL. Therefore, the TMDLs and compliance schedule implicitly state that there are zero allowable exceedances of wasteload allocations by the end of the TMDL compliance implementation period.

Comment 376

The numeric limits should not be based on the frequency of use.

The Draft TMDL appears to account for beach usage in determining the appropriate numeric targets. As stated in the Draft TMDL, "...the "designated beach" category may be over-protective of water quality because of the infrequent recreational use in the impaired creeks. The recreational usage frequency in these creeks may correspond to the "moderately to lightly used areas" category. If information is obtained to justify the "moderately to lightly used area" usage frequency, TMDLs using the corresponding to this numeric target will be used instead." This approach is inappropriate. This policy approach is in essence saying that it is okay if a few beach-goers get sick after recreating in polluted water. The Draft TMDL should not differentiate the numeric limits in this manner. If the Board believes that receiving waters are not used for recreational purposes, then the Regional Board should complete a Use Attainability Analysis to determine if the use is truly absent.

Response: The Basin Plan for the San Diego Region has different enterococci water quality objectives for different usages or use frequencies for both freshwater and saltwater, whereas the Ocean Plan only has enterococci water quality objectives for saltwater without differentiating usages or use frequencies. At the impaired segments located along the Pacific Ocean shoreline, the Ocean Plan enterococci water quality objectives are applicable. However, for inland freshwater creeks, the Basin Plan water quality objectives are applicable.

The Technical Report acknowledges that the four impaired creeks (San Juan Creek, Aliso Creek, San Diego River, and Chollas Creek) included in the TMDL project, which are freshwater water bodies, may not be necessarily used at "designated beach" level, but may potentially be classified as "moderately or lightly uses areas" for recreational purposes. However, the dischargers must provide evidence justifying the "moderately to lightly used area" usage frequency for the four impaired creeks before the San Diego

Water Board issues orders to implement the TMDLs. Otherwise, we will implement the more stringent enterococci TMDLs based on the “designated beach” usage frequency.

This approach is appropriate and is consistent with the Basin Plan and Ocean Plan.

Comment 377

Table 4-4 (Final Dry Weather Targets) implies that the final Total Coliform target for creeks is 70 MPN, which contradicts the associated text which describes it as 1,000 MPN. The table also does not reflect all the other differences described in the text between beaches and creeks with respect to interim targets. Also, the text in Section 4 should at least paraphrase the discussion included in Section 1.1, acknowledging that SHELL is not a designated use in freshwater creeks and rivers and that total coliform wet/dry and interim/final TMDLs are only applicable at the ocean shoreline, not upstream in the creeks.

Response: Thank you for noting the error. The error has been corrected and, in addition, the SHELL TMDLs were removed from this project and will be addressed in a separate SHELL TMDL and/or standards action. As a result, there are now only final dry weather targets, and no interim dry weather targets.

Comment 378

The descriptions in Tables 11-4 and 11-5 (the compliance schedules) have been generalized to the extent that what is meant by “All Interim” and “All Wet” is unclear and can be read as contradictory to the associated text. The most straightforward way to avoid misinterpretations would be more explicitness in the descriptions and inclusion of the Section 9 Table Numbers in each relevant line, for example for Years 5 through 7 in Table 11-4: “50% Interim Wet FC, TC, & Ent (Tables 9-1, 9-4, and 9-8); 50% Interim Dry TC (Table 9-6); and 50% Final Dry FC & Ent (Tables 9-3 and 9-10)”, etc..

Response: Thank you for noting where the tables were unclear. Table 11-4 has been split into two distinct tables to more clearly distinguish between wet and dry weather milestones. In addition, the SHELL TMDLs were removed from this project and will be addressed in a separate SHELL TMDL and/or standards action. As a result, there are now only final dry weather targets, and no interim dry weather targets.

Comment 379

In reviewing the Technical Report released on June 25th, I noticed what must be an administrative oversight, that the City of Poway is still listed as responsibly municipality for the Mission San Diego and Santee HSA on page 137.

Response: Thank you for noting the oversight. The City of Poway has been removed from the list of responsible municipalities in the Mission San Diego and Santee HSA.

5 References Cited

- Cheung, W., K. Chang, R. Hung and J. Kleeven. 1990. Health effects of beach water pollution in Hong Kong. *Epidemiol. Infect.* 105(1):139-162.
- Corbett, S., G. Rubin, G. Curry and D. Kleinbaum. 1993. The health effects of swimming at Sydney beaches. *Am J. Pub. Health* 83(12):1701-1706.
- Fleisher, J., F. Jones, D. Kay, R. Stanwell-Smith, M. Wyer and R. Morano. 1993. Water and non-waterrelated risk factors for gastroenteritis among bathers exposed to sewage-contaminated marine waters. *Int. J. Epidemiol.* 22(4):698-708.
- Fleisher, J., D. Kay, R. Salmon, F. Jones, M. Wyer, and A. Godfree. 1996. Marine waters contaminated with domestic sewage: nonenteric illnesses associated with bather exposure in the United Kingdom. *Am. J. Publ. Health* 86:1228-1234.
- Haile, R., J. Witte, M. Gold, R. Cressey, C. McGee, R. Millikan, A. Glasser, N. Harawa, C. Ervin, P. Harmon, J. Harper, J. Dermand, J. Alamillo, K. Barrett, M. Nides and G. Wang. 1996. An epidemiological study of possible adverse health effects of swimming in Santa Monica Bay. The health effects of swimming in ocean water contaminated by storm drain runoff. *Epidemiology* 10:355-363.
- Kay, D., J. Fleisher, R. Salmon, F. Jones, M. Wyer, A. Godfree, Z. Zelenauch-Jacquotte and R. Shore. 1994. Predicting likelihood of gastroenteritis from sea bathing: results from randomized exposure. *Lancet* 344:905-909.
- Spear, R. C., H. Xu, S. Selvin and R. C. Cooper. 1998. An analysis of marine bacterial indicator monitoring data. Environmental Engineering and Health Sciences Laboratory, University of California, Berkeley.
- State Water Board. 2004. Final Functional Equivalent Document, Amendment to the Water Quality Control Plan for Ocean Waters of California.
<http://www.waterboards.ca.gov/plnspols/docs/oplans/bactffed.pdf>.